Parenting Style During Adolescence: Stability and Relationship with Behavioural Change

Tara McFarquhar

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Thesis Portfolio Abstract

This thesis explores stability and change in parenting during adolescence, in both typical and high-risk populations. The portfolio contains the following chapters: 1, an introduction to the thesis portfolio; 2, a systematic review and meta-analysis examining the stability of parenting style and dimensions during adolescence; 3, a bridging chapter which considers definitions of stability and provides context for the empirical chapter; 4, an exploration of parenting trajectories using Growth Curve Modelling in a sample of adolescents with behavioural problems and their respective outcomes and 5, an overall discussion and critical evaluation.

Findings suggest that parenting dimensions such as demandingness and responsiveness remain relatively stable in community samples, supporting the use of a single measurement to predict outcomes across adolescence. In a sample of adolescents taking part in interventions for problem behaviour, distinct trajectories of positive parenting and monitoring/supervision were identified, with differences in reported outcomes based on parent and adolescent perspectives. High positive parenting correlated with better outcomes in terms of lower conduct disorder and higher pro-social behaviour, while sudden increases in monitoring were associated with negative outcomes.

Theoretical and clinical implications include the need for interventions that emphasize warmth over control and supervision tailored to individual adolescents, and modernization of parenting measures to account for the digital age, where online supervision is as critical as physical monitoring. These findings contribute to understanding how parenting evolves during adolescence and inform the design of more effective interventions and policies to improve adolescent outcomes.

Table of Contents Thesis Portfolio

List of Tables

Systematic Review & Meta-Analysis

Empirical Paper

List of Figures

Systematic Review & Meta-Analysis

Empirical Paper

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Chapter 1: Introduction to the Thesis Portfolio

This introduction will provide some overall context for the research, along with some theoretical background which has been necessarily contracted for the following publication manuscripts. This research arose from the observation that while parenting is a ubiquitous and well researched topic in childhood, research on parenting styles over the course of adolescence is commonly reported to be scarce (Holden & Miller, 1999; Schroeder & Mowen, 2014). While parenting dimensions are thought to be fairly stable in early childhood (Dallaire & Weinraub, 2005; Holden & Miller, 1999; Schroeder & Mowen, 2014), there appeared to be a lack of consensus regarding how and if parenting style changes during the teenage years. Many studies assume it does not, that it is static and trait-like. Researchers measure parenting style on a single occasion and compare it with outcomes, but how do we know that it does not change over the study period, either as part of the natural process of raising a child or by design through interventions? Concern about this lack of attention paid to parenting change has been raised in recent decades, notably by Holden & Miller (1999) and Schroeder & Mowen (2014), yet there seemed to be no efforts to synthesize the literature on parenting style over the course of normal adolescence. Chapter 2 attempts to fill this gap.

While chapter 2 focusses on parenting in the typical population, chapter 4 considers changes in parenting in the high-risk adolescent population. Parenting interventions are a first-line recommendation for addressing problem behaviours and mental health concerns in young people (World Health Organization, 2022) and are commonly included in the THRIVE framework categories (Wolpert et al., 2019), a needs-led set of principles for promoting mental health and well-being support for children, young people and families. The “Getting Advice” and “Getting Help” categories typically including parenting groups. Nice Guidelines for the treatment of conduct disorder also recommend parent training programmes (NICE,

2017). Specifically how parenting changes for these populations should be of interest to researchers and policy makers developing these interventions. Secondary data from a multi-site randomized controlled trial (START) was used to investigate change in a parenting measure in a high-risk sample of adolescents exhibiting moderate to severe antisocial behaviour. Over 80% of the young people enrolled in the trial met the DSM-IV criteria for any conduct disorder, and families received either Multi-Systemic Therapy (MST) or Management as Usual (MAU) over three to five months. Out of home placement was reduced by 20% in both treatment groups, but no long-term benefits were identified in behaviour, mental health, social care, forensics, or education, nor any economic advantage, for multisystemic therapy compared with management as usual (Fonagy et al., 2018). My empirical paper hypothesizes that there are trajectories of parenting that can be identified over time and that these trajectories will have differential outcomes.

There are a number of issues of definition which it may be helpful to consider in the process of reviewing the literature. Three theoretical approaches to parenting research are distinguished: styles, dimensions and practices (Calders et al., 2020). Parenting *style* has been defined as "the parents' perceivable attitudes towards the child" (Darling & Steinberg, 1993, p. 489). Based on the work of Diana Baumrind in the 1960s, it is typically classified along two axes or *dimensions*: demandingness and responsiveness (Baumrind, 1966). Demandingness refers to the level of control a parent exerts, perhaps over the use of boundaries, supervision, rules and direct confrontation. Responsiveness refers to the warmth they demonstrate through support, rationale and consistency (Baumrind, 2005). These axes can then be combined to produce four independent parenting styles (Baumrind, 1966, 2005; Maccoby & Martin, 1983). Authoritative parenting, a combination of high demandingness and high responsiveness allows the child autonomy while maintaining consistent warmth. Authoritarian parenting is characterized by high demandingness and low responsiveness,

control is maintained by the parent and warmth is low or inconsistent. Permissive parenting is typified by parental indulgence: low demandingness and high responsiveness. Uninvolved parenting comprises both low demandingness and responsiveness, whereby there is a lack of warmth and supervision.

Within the context of Western cultures, a considerable body of research correlates authoritative or the so-called "positive parenting" style with improved outcomes for adolescents, such as improved psychosocial competence (Lamborn et al., 1991), better academic performance (Pinquart, 2016; Steinberg et al., 1989, 1992;), less substance abuse (Baumrind, 1991) fewer internalizing and externalizing problems (Galambos et al., 2003), and higher self-esteem (Pinquart & Gerke, 2019). In contrast, the 'authoritarian' style is typically associated with less favorable outcomes, including aggression, delinquency, poorer mental health and lower self-esteem (Baumrind, 1966; Baumrind et al., 2010; Calders et al., 2020; Hoeve et al., 2008; Kuppens & Ceulemans, 2019; Pinquart & Gerke, 2019; Rankin Williams et al., 2009; Wolfradt et al., 2003). Permissive and uninvolved parenting styles are also associated with negative outcomes for children and young people, such as self-regulatory deficits (Bernier et al., 2010, Piotrowski et al., 2013), increased internalizing and externalizing behaviours (Nijhof & Engels, 2007, Pinquart, 2017) and lower self-esteem (Pinquart & Gerke, 2019).

Parenting style and dimensions can be thought of as a general inclination towards a certain parenting strategy (Power, 2013). Darling & Stenberg (1993, p 488) distinguish these from parenting *practices,* more specific, situational behaviours employed by parents in order to socialize children: “specific, goal-directed behaviors through which parents perform their parental duties”. They further explain: “although they are similar concepts, parenting practices refer to specific behaviors and strategies applied by parents when raising children and adolescents, while parenting styles refer more to the emotional climate in which parents

raise their children, and this in turn moderates the influence of specific practices". Examples of parenting practices might include physical affection, complimenting appearance or performance, reading with their child, setting a curfew, or enforcing homework. Parenting practices might reasonably be expected to change over the course of childhood and adolescence in a way that style might not, as different age appropriate strategies are required (Dallaire & Weinraub, 2005; Schroeder & Mowen, 2014). A shift in focus towards parenting styles and dimensions and away from specific practices began in the 1930s when studies failed to find relationships between caretaking practices and social and emotional outcomes (Orlansky, 1949). Studies reporting parenting practices only have not been included in the systematic review paper, as they are considered to be by definition, less stylistic and dependent on developmental stage.

A brief review of the literature quickly sheds light on why the evidence for change in parenting style might not have been clearly outlined before now. Notably, parenting style is not always clearly distinguished from practice, and the terms are sometimes used interchangeably. There are many different measures used to evaluate parenting style and no obvious answer to which should be considered the "gold standard". Other questions present themselves, such as who is in the best position to judge change in parenting style: is it parents themselves, adolescents or independent observers? Is measurement change best considered in group or individual terms? Importantly, how does time and culture impact parenting style and how do we consider that in relation to change? Addressing all of these questions is beyond the scope of this thesis, but an attempt has been made to bring together the evidence and consider it critically.

Parenting might be thought of as a continuum, with styles at one end, which might be less malleable to change and practices at the other end which might be considered to be more fluid, with dimensions somewhere in between. The aim of this thesis was firstly to conduct a

systematic review of research on change in parenting style or dimension over the course of adolescence, i.e. to examine evidence for change at the group level. The empirical paper then moves on to consider whether subgroup parenting change can be identified in a sample of adolescents receiving intervention for behavioural problems, and if so, are these parenting trajectories related to different outcomes for these young people.

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Chapter 2: Systematic Review

Prepared for submission to Journal of Adolescence (see Appendix D for author guidelines)

Title Page

Brief Title

Stability and Change in Parenting Style in Adolescence: A Systematic Review & Meta-analysis

Short Running Title

Parenting style in Adolescence

Corresponding Author

Tara McFarquhar[abc]

t.mcfarquhar@uea.ac.uk

Co-Authors (order tbc)

Sarah Reeve[ac], Rob Saunders[b], Liz Simes[b,d], Peter Fonagy[b,d]

[a]University of East Anglia, [b]University College London, [c]Cambridgeshire and Peterborough Foundation Trust,[d]Anna Freud.

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N/a. This study comprises a synthesis of existing, previously published data.

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Stability and Change in Parenting Style in Adolescence: A Systematic Review & Meta-analysis

Abstract

Parenting style is often treated as a stable construct in research, but this assumption oversimplifies a complex relationship between parent and child. This review evaluated the longitudinal course of parenting style during adolescence in the general population and the factors associated with change. A systematic review and meta-analysis were carried out, searching PsycINFO, Medline and EMBASE using the terms "parenting style" and the MeSH term "adolescent" in June 2024. Inclusion criteria comprised longitudinal studies reporting quantitative measure of parenting style or dimension of adolescents assessed at least two timepoints, at intervals of three months apart in 12- to 20-year-olds. Exclusion criteria included studies focusing on physical or mental health conditions, substance abuse, parenting practices only or retrospective reporting. Thirty studies met the inclusion criteria, totaling over 35,000 participants in 12 countries. Narrative synthesis and meta-analysis revealed that parenting style and dimensions remain relatively stable during adolescence, with demandingness/control slightly less stable than warmth. Pooled effect sizes over time were minimal for demandingness/control (g=-0.12, 95% confidence interval (CI)=-0.21;0.03) and responsiveness/warmth (g=-0.09, 95% CI=-0.18;0.0). Increased warmth and reduced control were associated with improved self-concept, emotion regulation and reducing externalizing behaviours. Shifts towards uninvolved or authoritarian parenting correlated with greater secrecy, substance use and offending. These findings support the use of single timepoint measurements of parenting dimensions to predict outcomes overtime, at least at the group level. Limitations include high heterogeneity and ecological validity concerns.

Key Words

Parenting style, adolescent, demandingness, responsiveness

Introduction

Parenting style has been defined as "the parents' perceivable attitudes towards the child" (Darling & Steinberg, 1993). It is typically classified along two axes: parental demandingness (control) and responsiveness (warmth) (Baumrind, 1966; Maccoby & Martin, 1983). Demandingness reflects the boundaries imposed on the child to integrate them into society, levels of supervision and direct confrontation between the parent and child. Responsiveness denotes the warmth, consistency and reasoning a parent provides to foster self-assertion (Baumrind, 2005). From these dimensions, a typology identifies four mutually exclusive parenting styles: permissive (high warmth, low control), authoritative (high warmth, positive control, and high expectations), authoritarian (low warmth, high conflict, and coercive control), and uninvolved (low warmth and low control) (Baumrind, 1978, 2013; Maccoby & Martin, 1983). Further distinctions have been made between behavioural control (rules and monitoring), and psychological control (limits on thoughts and feelings) (Barber, 1996; Barber & Harmon, 2002).

A substantial body of research links authoritative parenting with improved adolescent outcomes, whereas authoritarian parenting is associated with poorer outcomes (Baumrind et al., 2010; Kuppens & Ceulemans, 2019). Authoritative parenting is associated with fewer internalising and externalising problems (Galambos et al., 2003; Steinberg et al., 1994), reduced substance use (Gray & Steinberg, 1999), and better academic performance (Steinberg et al., 1989, 1992). Conversely, authoritarian parenting, particularly in Western cultures, correlates with increased internalising and externalising problems (Baumrind, 1996; Lamborn et al., 1991) and poorer academic performance (Shumow et al., 1998).

The assumption of stability in parenting style is appealing, as it allows for single-timepoint measurements to be used in predicting both short- and long-term outcomes. Parenting style is often conceptualised as a trait-like characteristic with consistent effects over time (Schroeder & Mowen, 2014). This model is cost-effective and avoids "theoretical havoc" arising from an unstable view of parenting (Holden & Miller, 1999). However, this assumption risks inaccuracy, as single-timepoint measurements may not reflect prior or future experiences (Holden & Miller, 1999).

Parenting style during early childhood is generally stable without intervention (Baumrind, 1966; Dallaire & Weinraub, 2005; Holden & Miller, 1999; Skinner et al., 2005). However, evidence on parenting style during adolescence is limited. This gap is significant given the turbulence of this period. Socio-emotional and cognitive development reach a critical stage in adolescence (Larsen & Luna, 2018). Neurobiological changes in the brain at the onset of puberty are pronounced in the neural networks related to behaviour and development, affecting decision making, risk taking, navigation of social interactions and pursuit of goals (Baker et al., 2025). Life stressors such as parental separation which can affect parenting style are more common during adolescence (Schroder & Mowen, 2014). Given adolescence is a period marked by biological and sociological change, it seems questionable to assume parenting style does not change either as a result of or in response to these changes. Understanding whether and how parenting style changes during this period, and the factors influencing such change, would address this gap and mitigate risks inherent in assuming stability.

This review distinguishes between parenting style (based on dimensions) and parenting practices. Parenting practices are specific behaviours (e.g., hugging, reading together, enforcing homework) that may change without a corresponding shift in parenting

dimensions or style. For instance, a parent may maintain consistent warmth through evolving practices as their child matures or societal norms shift. Changes in parenting style reflect meaningful shifts in parent-child interactions, whereas changes in parenting practices are expected to be less stable. Darling & Steinberg (1993) clarify that "parenting practices refer to specific behaviors and strategies applied by parents when raising children and adolescents, while parenting styles refer more to the emotional climate in which parents raise their children, and this in turn moderates the influence of specific practices". These definitions informed the inclusion and exclusion criteria: measures of parenting style (authoritative, authoritarian, permissive, uninvolved) and dimensions (demandingness, warmth) were included, while measures of specific parenting practices were excluded.

In examining the stability of parenting behaviours over time, it is useful to differentiate between two distinct forms of stability: absolute stability and relative stability**.** **(H**olden & Miller, 1999; Loeber et al., 2000). Absolute stability refers to consistent mean scores over time, while relative stability describes the degree to which parent's position on parenting style relative to others remains constant (i.e., correlation between values over two timepoints across individuals). Both types of stability contribute to a comprehensive understanding of the dynamics of parenting over time: minimal or no change in means and strong correlations over time would suggest stability in parenting.

The objective of this systematic review and meta-analysis was 1. to examine the evidence for stability or change in parenting style or dimensions over two or more occasions at least three months apart during adolescence, and 2. To identify factors associated with that change. A broad approach was adopted to capture any standardized quantitative measure of parenting style by parent, adolescent or observer. Both absolute and relative stability were examined.

Methods

Registration

This review was registered with Prospero, ID CRD42024501557, on 18/04/2024 (see Appendix E).

Search Strategy

Electronic databases PsycINFO, Medline Ultimate and EMBASE were searched from inception to 8th June 2024. Reference lists of relevant empirical studies identified through the database search were manually reviewed to identify additional studies. In order to capture as many relevant studies as possible, a search strategy was adopted using the following terms: "*parenting style*" [all fields] and "*Adolescent*" [MeSH]. The MeSH term for "*Adolescent*" includes adolescent, adolescence, youth, teen and teenager.

Measures used to evaluate parenting style and dimensions were expected to vary, with some discrepancies between measure names and their intended constructs. Each study was carefully assessed in this respect. For example, while the *Parenting Practices Scale* (Lamborn et al., 1991) might suggest exclusion based on its name, it includes measures demandingness and responsiveness.

Eligibility Criteria

Inclusion Criteria

Longitudinal studies reporting any quantitative measure of parenting style (authoritarian/authoritative/permissive/uninvolved) or parenting dimensions (demandingness/control or responsiveness/warmth) on at least two occasions, spaced at least three months apart, were included. At least one data collection point had to fall between the ages of 12 and 20. Measures could be reported by parent/carers, adolescents or observers.

Exclusion Criteria

To focus on typical adolescent development, studies exclusively selecting parents or adolescents with current physical or mental health conditions or substance abuse problems were excluded. Studies reporting only parenting practices (e.g., discipline or punishment) or retrospective measures of parenting style were also excluded. Articles not written in English, protocols, abstracts, dissertations, and study designs that were cross-sectional, qualitative, or case reports were excluded.

Study Selection and Data Extraction

Reviewer 1 (TM) screened and extracted data, discussing with Reviewer 2 (SR) if clarification was required. Records were screened by title, abstract and by full text (if required), using the Rayyan web app (Ouzzani et al., 2016). Multiple articles reporting the same dataset were treated as one study and referenced accordingly.

For each study, the following were extracted: study name, sample size, source and measure of parenting style/dimensions, subscales, data collection timepoints, and outcomes. Where possible, means, standard deviations (SDs), and correlations were also recorded. Sample characteristics were documented in accordance with the Progress+ framework (O'Neill et al., 2014).

Data Synthesis

Narrative synthesis was performed in line with steps described by Cochrane (Ryan, 2013). Preliminary synthesis involved describing each study by tabulating the data extracted. Evidence for stability and change was then explored by grouping findings into reports of parenting styles, demandingness/control, responsiveness/warmth. Studies reporting factors

associated with changes in style or dimension were also grouped. The study sample, design and measures used were considered with regards to outcome.

To examine absolute stability, meta-analyses were performed using Meta Essentials (Suurmond et al., 2017), where means, standard deviations and correlations were reported for measures of demandingness/control or responsiveness/warmth across two or more timepoints. Authors were contacted to obtain these where not reported. Data was analysed as dependent groups with continuous measures, using effect sizes calculated from the first and last timepoints (T1 to Tk), effectively representing a pre-post design with time as the intervention.

Random effects models were employed to account for both random error within studies and real variation in effect sizes (ES) across studies, given the expected heterogeneity due to broad inclusion criteria. Heterogeneity was assessed using I^2 and prediction intervals. Potential subgroup analyses included behavioural/psychological control, person reporting, early/late adolescence, short term/long term follow up.

To examine relative stability, mean correlations between measures of parenting style, demandingness/control or responsiveness/warmth across two or more timepoints were extracted.

Risk of Bias and Quality Assessment

Risk of bias was considered by adopting broad inclusion criteria, minimal exclusions, and consultation with Reviewer 2 when needed. Agreement between Reviewer 1 and Reviewer 2 was tested with a random selection of 10 studies selected for full-text review. Publication bias was assessed using Egger's test of funnel plot asymmetry. Study quality was assessed using the Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018), chosen for its ability to evaluate multiple empirical study types (randomised controlled trials, non-

randomised studies, quantitative descriptive studies, and mixed methods). As per MMAT guidance, the screening questions ("are there clear research questions?" and "does the data address the research questions") were omitted, as selection criteria excluded non-empirical studies, and these questions were deemed redundant. Reviewer 3 (MS) conducted a second quality assessment on 10 studies to ensure consistency.

Results

Systematic Review

The search and selection process is illustrated using a PRISMA flow diagram (Page et al., 2021) (Figure 1). Initial searches identified 2,279 articles. Prior to screening, 815 duplicates were removed—first automatically within Rayyan and then manually verified by Reviewer 1. Abstract screening was conducted on 1,464 articles, leading to the exclusion of 1,384. The primary reasons for exclusion were:

- Design (n=1,042): cross-sectional, qualitative, case report, or duration less than three months.
- Outcome (n=119): absence of parenting style/dimension measures or reliance on retrospective measures.
- Population (n=121): samples involving only children under 12 years, young people over 20 years, or those selected for mental/physical health or substance abuse issues.
- Non-study articles (n=70): background articles.
- Publication type (n=31): corrections, conference abstracts, or dissertations.
- Language (n=1): not available in English.

Eighty articles underwent full-text screening, resulting in the exclusion of 53 for reasons of design (n=21), outcome (n=19), or population (n=13). Citation searches of the full-text-reviewed articles identified an additional 18 articles, of which eight were included. There was "good" agreement (90%, κ=0.615, $p<0.05$) between Reviewers 1 and 2 (Altman, 1999) on a random selection of 10 articles reviewed at the full-text stage. Disagreements were discussed and resolved for one article.

In total, 35 articles reporting 30 studies were included in the review. Studies were conducted in 12 countries across Europe (k=11), North America (k=10), South America (k=1), Mainland China and Hong Kong (k=6), and Australia (k=2).

Only three studies reported on change in parenting style itself. Regarding parenting dimensions, eight measures of both demandingness/control and responsiveness/warmth were reported in nine studies. Responsiveness alone was reported using three measures in five studies and demandingness/control using 9 measures in 12 studies. Three studies created their own measures of demandingness or control.

Methodological quality was assessed using five criteria specified by the MMAT (Hong et al., 2018). All studies were classified as 'quantitative descriptive' and were assessed on the same four questions: 1. Is the sampling strategy relevant to address the research question? 2. Is the sample representative of the target population? 3. Are the measurements appropriate? 4. Is the risk of nonresponse bias low? 5. Is the statistical analysis appropriate to answer the research question? One point was awarded for each criteria scored as "yes", up to a maximum score of five (see table 1). Quality was generally of a good standard, with 85.7% of articles rated as 3 out of 5 or above on this recognized critical appraisal tool. Three articles achieved the maximum score, 13 scored four, 14 scored three, and five scored two points. Most points were lost on items two (19 articles) and four (22 articles) due to authors noting

that the sample was not representative enough of the population, or differences in attrition analyses.

Inter-rater reliability between TM and MS was evaluated using the intra-class correlation co-efficient on a random selection of 10 articles. A high degree of reliability was found between quality ratings, using a two-way mixed effects model and absolute agreement (Koo & Li, 2016). The average measure ICC was .841 with a 95% confidence interval from .713 to .911 ($F(49)= 6.76$, $p<.001$). See Appendix G for detailed breakdown of criteria scoring.

Meta-Analysis

Six authors were contacted to obtain missing data; one responded, noting that the data was no longer available. Subgroup analyses were conducted for:

- Adolescent vs parent-reported measures.
- Follow-up duration (<2 years vs >2 years).
- Developmental stage (early vs mid-adolescence).
- Psychological vs behavioural control.

When studies did not explicitly specify psychological or behavioural control, the categorisation was determined based on the descriptions provided in the articles.

Figure 1 *PRISMA flow diagram describing identification of studies*

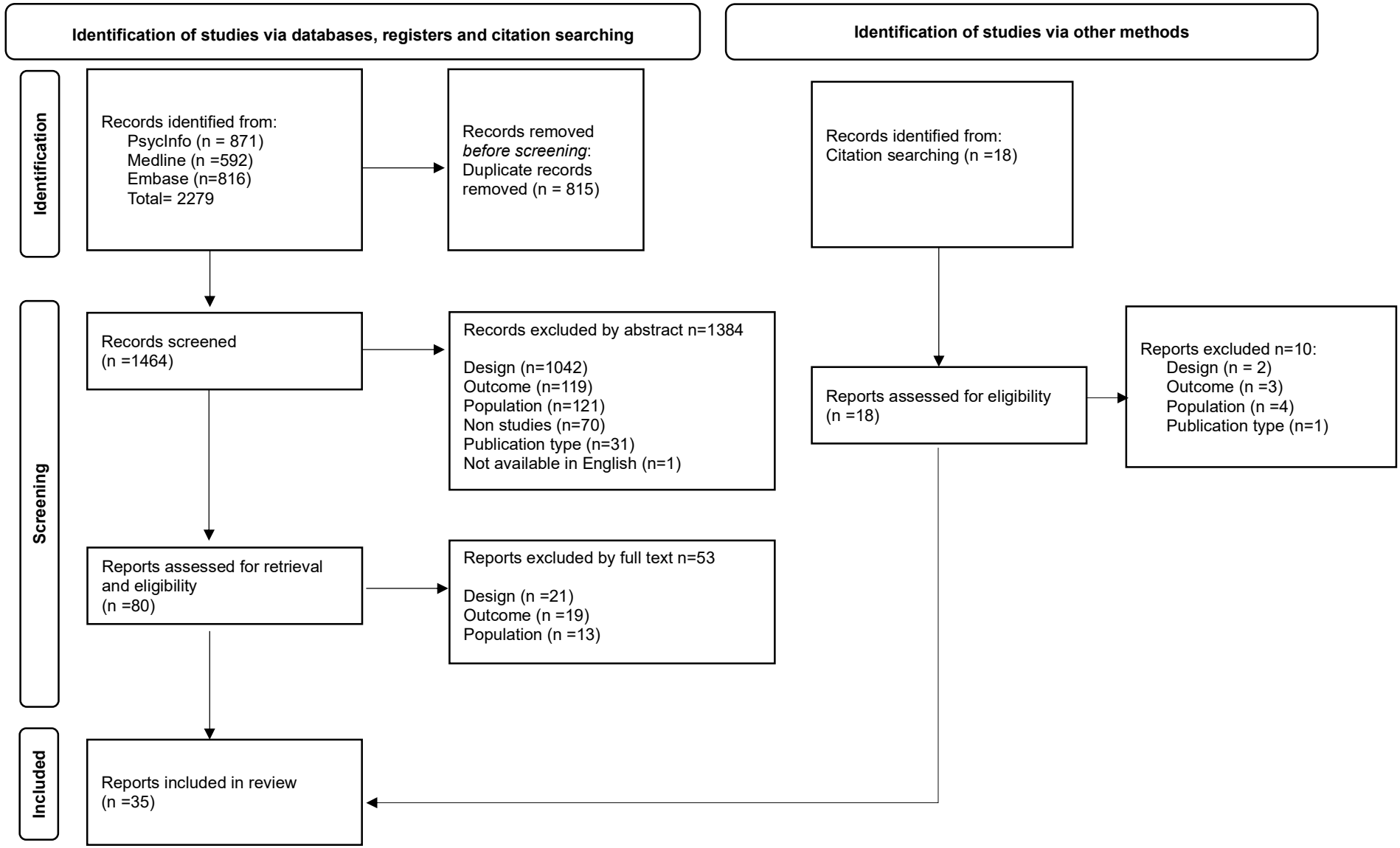


Table 1

Studies included in the Systematic Review

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Georgiou & Charalampous (2024)	A	868/ 11.7	Diverse urban/rural residences from 3 districts in Cyprus. 47.5% male. Parents: 2.5% only elementary schooling, 38% completed secondary education, 39.5% tertiary education	Parental Authority Questionnaire (PAQ) (Buri, 1991) *Authoritarian* *Authoritative* *Permissive*	T1: Oct 2018 T2: Apr 2019 5 months	Authoritarian: T1: 2.37(.8) T2: 2.28(.81) T1 to T2 r=.59, p<.05 Authoritative: T1: 3.85(.79) T2: 3.73(.91) T1 to T2 r=.52, p<.05 Permissive: T1: 3.01(1.01) T2: 3.0(.96) T1 to T2 r=.41, p<.05	4
Peng et al (2024)	A	4990/ 12.2	Mid to large cities in northern, southeast, & southwestern China. 49.9% male. parental education level rated on 5 point scale (1: <high school, 5: advanced degree), Mmo = 2.71 (1.43) Mfa = 2.83 (1.46)	The Psychological Control Scale (Wang et al., 2007)	T1: 2017 T2: 2018 T3: 2019 12 months	T1: 2.65 (.73) T2: 2.71 (.8) T3: 2.67 (.81) T1 to T2 r=.58, p<.001 T2 to T3 r=.62, p<.001 T1 to T3 r=.49, p<.001	5

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**		**MMAT Score/5**
Richardson et al (2023) Risks to Adolescent Well-being project (RAW)	P & A	531/ 11.2	Sydney, Australia. 51% male. 90% Australian born, 82% white. Income AUD <$100k=21%, 100-200k=44%, >200k=34%. 71% of parents have a degree, 70% never had mental health disorder.	Egna Minnen Beträffande Uppfostran (EMBU-P/C)(Perris et al., 1980) *Emotional warmth*	T1: 2016 T2: 2017 T3: 2018 T4: 2019 T5: 2020 12 months	Parent^ T1: 21.03(2.3) T2: 20.51 (2.54) T3: 20.28 (2.54) T4: 20.0 (.2.77) T5: 19.66 (2.77) P<.001 R=.49, p<.05 Adolescents & parents reported parental warmth significantly decreased with small ESs.	Adolescent^ T1: 20.39(3.0) T2: 19.72 (3.46) T3: 19.14 (3.46) T4: 18.61 (3.92) T5: 17.92 (3.92) P<.001 R=.34, p<.05	3
Spitz & Steinhausen (2023) Zurich Adolescent Psychology & Psychopathology Study (ZAPPS)	A	619/ 14.9	Zurich, Switzerland. 43.1% male. 95% native Swiss. Lower class, 13.2%, lower middle class, 59%, upper middle class 19.9%, upper class 7.9%. Parents divorced 21.5%	Zurich Perceived Parental Behavior Inventory (PPBI) (Reitzle et al., 2001) *Acceptance (warmth)* *Psychological Control*	T1: 1997 T2: 2001 4 years	Acceptance: T1: 24.91 (5.78) T2: 26.41 (5.79) Psychological Control: T1: 6.55 (4.27) T2: 4.63 (3.77)		3

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Teuber et al (2022) Families' Support in the Acquisition of Discourse- & Text Competence in Secondary School	A	789/ 10.8	North-Rhine Westphalia, Germany. 49.9% male. Academic school track 74.0%, vocational track 26.0%. 31.05% migrant background	The German Parental Behavior Scale (Wild, 1999) *warmth* *psychological control*	T1: 2010 T2: 2012 T3: 2014 2 years	Warmth T1: 3.48 T2: 3.4 T3: 3.41 Psychological Control: T1: 2.33 T2: 2.13 T3: 2.1 T1 to T2 r=.47, p<.01 T2 to T3 r=.48, p<.01 T1 to T3 r=.32, p<.01 Approx half of the Supportive & Controlling parenting profiles remained stable from early to mid-adolescence. Unsupportive–Uncontrolling & Limited Supportive profiles had low stability. supportive parenting became more stable during mid-adolescence. More parents who were controlling in early adolescence became less controlling in mid-adolescence	4

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Meisel & Colder (2022) Trucco et al (2014)	A	387/ 12.1	Erie County, New York, USA. 45% male. 83.1% White, 9.1% African American, 2.1% Hispanic, 1% Asian, 4.7% mixed ethnicity. Medium family income=$70K, range $1.5-500k.	Parenting Style Inventory II (Darling & Toyokawa, 1997) *Demandingness* *Responsiveness*	T1: 2007 T2: 2008 T3: 2009	Demandingness: T1: 4.12 (.51) T2: 4.13 (.51) T3: 4.06 (.55) T1 to T2 r=.53, p<.05 T2 to T3 r=.55, p<.05 T1 to T3 r=.46, p<.05 Responsiveness T1: 4.22 (.54) T2: 4.24 (.57) T3: 4.18 (.62) T1 to T2 r=.52, p<.05 T2 to T3 r=.64, p<.05 T1 to T3 r=.47, p<.05 5 profiles of parenting identified over time: Stable-Uninvolved, Stable Balanced, High Warmth-Authoritative, Decreasingly Warm-Authoritative, & Increasingly Permissive. Adolescents of decreasingly warm-authoritative parents had the highest probability of substance use by late adolescence.	5 5

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Gan et al (2021)	A	1041/ 12.9	Hubei China. 46.3% male	Simple Egma Minnen av Bardndosnauppforstran Questionnaire, Chinese version (S-EMBU-C) (Perris et al., 2010) *Rejection* *Emotional Warmth* *Overprotection* Rotated into 5 high-order factors: *Parental care* *Parental control*	T1: Oct 2018 T2: Apr 2019 T3: Oct 2019	No main effect of parental care or control over time. Parental Care males/females T1: 2.82(.62)/2.73(.7) T2: 2.83 (.62)/2.72(.68) T3: 2.74 (.64)/2.69(.68) T1 to T3 r=.042, p>.05 Parental Control males/females T1: 1.88(.35)/1.83(.37) T2: 1.87(.35)/1.78(.37) T3: 1.82(.37)/1.8 (.37) T1 to T3 r=.068, p<.05	3

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Kaniušonytė & Laursen, (2021) POSIDEV, Mechanisms of promoting positive youth development in the context of socio-economical transformations	A	454/ 15.1	Western Lithuania. 47.4% male. 69.5% lived with two biological parents; 26.1% received free nutrition at school. Nearly all were ethnic Lithuanian.	Behavioural control inventory (Small & Kerns, 1993) Psychological control inventory (Barber, 1996) Support inventory (Morton et al., 2011)	T1: 2013 (G9) T2: 2014 T3: 2015 T4: 2016	Behavioural control parents: T1: 4.09(.73) T2: 4.1(.73) T3: 4.09 (.73) T4: 3.96(.76) R=.57 to .76, p<.05 Psychological control Mo/Fa: T2: 1.38 (.26)/1.35 (.35) T3: 1.4 (.31)/1.37 (.41) T4: 1.39 (.31)/1.36 (.49) R=.62 to .68/.55 to .63, p<.05 Support Mo/Fa T2: 4.12 (.8)/3.83 (1.06) T3: 3.72 (.75)/3.57 (.98) T4: 3.99 (.8)/3.84 (.84) R=.35 to .5/.44 to .52, p<.05 Significant quadratic slope for Behavioural control indicating non-linear decrease at T4. Maternal support decreased linearly over time (p<.01). Four parenting styles identified: authoritative, indulgent, enmeshed and effectively controlling	2

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Lepe et al (2021) Dutch Lifelines Cohort Study	A	1217/ 13	North of the Netherlands, 48.4% male, mean years of parental education=12, mean standardised occupational prestige scale=group 3 limited autonomy of action.	Egna Minnen Betraffande Uppfostran (Muris et al., 1998) Items selected from *Emotional Warmth,* scoring 0-24	T1: 2010-2014 T2: 2014-2018 mean f/up= 33.3 months	emotional warmth mean change T1-T2: males=−0.12 (3.66) females=−0.39 (3.31) No significant difference between sexes. Parenting which became less emotionally warm was consistently related to increases in symptoms of depression during follow-up.	3
Leung (2021)	A	1463/ 12.7	Hong Kong, 53.2% male, 74% from intact families, 20% receiving social security assistance (official HK statistics indicate 8.5% receive it overall)	Chinese Paternal & Maternal Overparenting Scales (PCOS/MCOS) (Leung & Shek, 2018) (measure of control)	T1: grade 7 T2: grade 8 T3: grade 10	Overparenting Mo/Fa: T1: 3.11(.91)/2.59(.81) T2: 3.08(.9)/2.56(.77) T3: 3.0(.89)/2.51(.8) T1 to T2 r=.63/61, p<.001 T2 to T3 r=.65/.56, p<.001 T1 to T3 r=.54/.5, p<.001	3
Pinheiro-Carozzo et al (2021) Brazilian Strengthening Families Program	A	361/ 11.7	Low income families in north east Brazil, 52.1% male, 70.6% in receipt of social welfare, 66% parents <9 years of schooling Intervention aimed at improving parenting styles, face to face group	Parenting Practices Scale (Lamborn et al., 1991) *Responsiveness* *Demandingness*	T1: pre T2: post T3: 6-8 month f/up T4: 10-12 month f/up	Overall, both dimensions increased over time (responsiveness, p = .002, demandingness, p = .006). Cluster analysis revealed authoritative, Authoritarian & Indulgent parenting style groups at T1. Responsiveness increased in authoritarian parents, & demandingness levels increased among indulgent parents.	4

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Baudat et al (2020)	A	473/ 15.0	French Speaking Switzerland, 35.3% male, 81.1% Swiss citizens, 75.7% intact family structure, 61.3% perceived their personal financial situation as average, 33.6% as below & 5.1% above.	Dependency-oriented & Achievement-oriented Psychological Control Scale (Mantzouranis et al., 2012)	T1 T2 T3 T4 6 month intervals	T1: 1.99(.66) T2: 1.94(.65) T3: 1.94(.74) T4: 1.94(.74) T1 to T2 r=.63, p<.001 T2 to T3 r=.6, p<.001 T3 to T4 r=.69, p<.001 T1 to T4 r=.42, p<.001 Perceived controlling parenting was overall stable over time, but variance in the slope was significant (p<.01), suggesting participants do not follow the same trajectory over time. Increases in controlling parenting were associated with increases in secrecy (p<.001) and alcohol use (p=.002).	3

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Calders et al (2020) & Van Heel et al (Van Heel et al., 2019) Studying Transactions in Adolescence: Testing Genes in Interaction with Environments (STRATEGIES)	P & A	1116/ 13.8	Flanders, Belgium, 51% boys, 97.9% Belgian nationality, 79.1% intact family, >50% net monthly income>4500e, 15% below poverty threshold, 69% Fas & 55% Mos university educated	64 items selected for the study from 10 parenting questionnaires *Parental Support* *Proactive Control* *Psychological Control* *Punitive Control* *Harsh Punishment*	T1: 2012 T2: 2013 T3: 2014 T4: 2015 T5: 2016 T6: 2017	Parenting dimensions reported to be relatively stable over time & developmental course comparable between mothers, fathers, & adolescents (See Van Heel et al (2019) for means). Full scalar invariance of a multidimensional model of parenting was found over time. In 75% of the analyses across informants at least partial scalar invariance was established, suggesting that the general concept and underlying dimensions are invariant. Change from authoritative to authoritarian cluster was associated with a decrease in self-concept & an increase in externalizing problem behaviour. Changes from authoritarian to authoritative cluster were associated with an increase in self-concept & a decrease in externalizing problem behaviour.	3 3

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Williams & Ciarrochi (2020) & Williams et al (2012)	A	749/ 12.4	Woollongong, Australia, 49.7% male, 82.1% Catholic, ethnically diverse, less likely to be divorced & higher than average SES compared with Australian population	The Parental Authority Questionnaire (Buri, 1991) *Authoritative* *Authoritarian* *Permissive*	T1: 2003 T2: 2008	Authoritative Mo/Fa T1: 3.61(.71)/3.52(.73) T2: 3.49(.76)/3.33(.86) Authoritarian Mo/Fa T1: 2.93(.74)/2.99(.82) T2: 2.73(.76)/2.97(.85) Permissive Mo/Fa T1: 2.62(.63)/2.73(.73) T2: 2.79(.66)/2.78(.77) Parents were perceived as becoming significantly more permissive, & less authoritative & authoritarian, all Fs>5.4, p<.05.	4 4
Rogers et al (2019) Moilanen et al (2015) Flourishing Families Project	A	500/ 11.3	USA pacific North west, 47.6% male White 67%, African American 12%, Hispanic 2%, Asian American 4%, multi 12%, other 2%, 67% two parent homes, median family income =US$5000 per month indicating middle class, 30.1% of Fas had a degree % 28.4% of Mos	Psychological Control Scale Youth Self Report (PCS-YSR; Barber, 1996)	T1: 2007 T2: 2008 T3 2009 T4 2010 T5 2011 T6 2012 T7: 2013	Psychological control Mo/Fa T1: 1.68(.63)/1.65(.61) T2: 1.75(.69)/1.69(.62) T3: 1.82(.69)/1.75(.69) T4: 1.92(.72)/1.81(.69) T5: 2.02(.78)/1.87(.75) T6: 2.05(.82)/1.84(.74) T7: 2.08(.83)/1.85(.77) r=.21 to .24 for girls and .36 to .39 for boys, p<.001 for both Mo & Fa. Increase in Mo & Fa control was significantly associated with a decrease in self regulation (r=-.2 to -.5, p<.001).	4 4

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Van Lissa et al (2019) RADAR	A	480/ 15.0	Utrecht, The Netherlands, 56.9% male, >90% living with both biological parents, 100% Dutch nationals, most classified as medium-high SES	Parenting Practices questionnaire (Stattin & Kerr, 2000) *Parental Behavioral control* Psychological Control scale (Barber & Harmon, 2002)	T1: 2008 T2: 2009 T3: 2010 T4: 2011	Behavioural control Mo/Fa T1: 3.39(1.03)/2.97(1.04) T2: 3.27(1.09)/2.89(1.85) T3: 2.91(1.13)/1.64(1.05) T4: 2.58(1.15)/2.28(1.0) Psychological control Mo/Fa T1: 1.77(.72)/1.9(.77) T2: 1.86(.74)/1.92(.74) T3: 1.8(.74)/1.87(.75) T4: 1.8(.76)/1.85(.75) Small to medium significant correlations between subsequent timepoints for both Mo & Fa behavioural control (r=.18 to .45, p<.01) and psychological control (r=.21 to .28, p≤.05). Decreasing paternal behavioural control predicted increasing emotional regulation (r=-.12 to -.16, p≤.05).	3
Lippold, Glatz et al (2018) Lippold et al (2018) Promoting School-Community-University Partnerships to Enhance Resilience PROSPER	Average of P & A	636/ 11.3	Rural farms & small towns in Iowa & Pennsylvania, USA. 48% male, 90% white, 72% living with both biological parents, 100% in 2 parent households, mean income=US$59k, 69% of parents had some post secondary education	Measures from Iowa Youth & Families Project (Conger, 1989) *Warmth*	T1: Autumn 2003 T2: Spring 2004 T3: Spring 2005 T4 Spring 2006 Means reported T1-T2, modelling T1 to T4	Warmth Mo/Fa T1: 6.09(.77)/5.65(1.03) T2: 6.0(.87)/5.56(1.15) R=.69/.73, p<.001 Mo & Fa warmth decreased over time (p>.001). Fluctuations in warmth was associated with elevated risk for tobacco & substance use.	2 2

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Missoten et al (2018) Conflict with Mothers & Personality in Adolescence: Study of resolution Styles CoMPASS	A	819/ 13.0	Flanders, Belgium, 48% male, 86.4% lived in intact families	child report on parent behavior inventory (CRPBI) (Schaefer, 1965) *maternal responsiveness* psychological control scale (PCS-YSR) (Barber, 1996)	T1: 2013 T2: 2014 T3: 2015	Maternal responsiveness T1: 4.02(.75) T2: 4.02(.74) T3: 4.02(.77) T1 to T2 r=.64, p<.001 T2 to T3 r=.69, p<.001 Psychological control T1: 2.02(.61) T2: 1.99(.62) T3: 1.99(.65) T1 to T2 r=.6, p<.001 T2 to T3 r=.7, p<.001	3

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Zhang et al (2017) Longitudinal Study of Chinese Children & Adolescents (LSCCA)	P	2173/ 11.3	Jinhan, urban China. 52% male, 58.9% of Mos & 67.8% of Fas had university/college degree, 63.4% of Mos & 75% of Fas professional/semi professional occupations	Child Rearing Practices Report- Chinese version, mother report (Chen et al., 2000) *Warmth* *Supervision*	T1: Spring 2008 T2: Spring 2009 T3: Spring 2010	Warmth: T1: 3.26 (0.61) T2: 3.27 (0.59) T3: 3.29 (0.59) T1 to T2 r=.5, p<.001 T2 to T3 r=.49, p<.001 Supervision: T1: 2.14 (0.7) T2: 2.1 (0.68) T3: 2.15 (0.66) T1 to T2 r=.46, p<.001 T2 to T3 r=.48, p<.001 Four subtypes of parenting style identified: authoritative, authoritarian, average-level undifferentiated, & strict-affectionate. Substantial longitudinal stability of parenting style group membership; average across-time and within-profile prob ability value ranging from 68.4% (T1 to T3) to 72.4% (T1 to T2) across the four profiles. Different parenting styles varied in the extent of parenting style stability: >70% of authoritative, strict affectionate and average-level undifferentiated mothers maintained their parenting style, only 50–60% of the mothers stayed in the style of authoritarian parenting 1 year later.	4

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Schroeder & Mowen (2014) National Longitudinal Survey of Youth (NLSY)	A	4389/ 12-14 (range)	Nationally representative USA, 51.5% male, 53.7% White, 24.0% Black, 21.3% Hispanic, & 1.0% "other" race. average family income US$47,242	Single item measure of maternal Demandingness Responsiveness To create 4 types (authoritative, authoritarian, permissive, uninvolved) (Baumrind, 1966)	T1: 1997 T2: 1999	T1: 43.2% authoritative. 13.4% authoritarian, 32.6% permissive & 10.8% uninvolved. T2: 35.8% authoritative, 16.1% authoritarian, 30.9% permissive, & 17.1% uninvolved. 53.6% of adolescents experienced a parenting style shift, most commonly from authoritative to permissive (25.5%), representing a fundamental decrease in demandingness. Shifts towards authoritative parenting was associated with decreases in offending & transition from authoritative parenting to uninvolved parenting also associated with increased offending. All shifts to authoritative parenting associated with significant increases in maternal attachment.	4
Rousseau et al, (2013) JOnG!-study	P	1499/ 12.8	Flanders, Belgium. 41.2% male, 92.2% Belgian, 83.7% two parent family, 96.4% Fas & 84.4% Mos in paid employment, 66.1% of Mos & 51.2% Fas had a degree, 59.7% family income >3000E	Parental Behaviour Scale (Van Leeuwen & Vermulst, 2004) *warmth & support* The Psychological Control Scale (Kuppens et al., 2009)	T1: 2009 T2:2010 T3:2011	Warmth T1: 4.1(.49) T2: 4.03(.53) T3: 3.98(.55) T1 to T2 r=.69, p<.001 T2 to T3 r=.71, p<.001 Psychological control T1: 1.67(.41) T2: 1.7 (.41) T3: 1.72(.42) T1 to T2 r=.58, p<.001 T2 to T3 r=.6, p<.001	4

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Luyckz (2011) Oregon Youth Substance Use Project (OYSUP)	P	1049/ 9.0	Western Oregon, USA. 49.7% male, predominantly working class area, 40% eligible for free/reduced cost lunch, 86% white, 7% Hispanic, 1% Afro-American, & 6% of other mixed, 71% Mos & 66% of Fas had post-high school education.	Alabama Parenting Questionnaire (Shelton et al., 1996) *Monitoring/supervision* *Inconsistent discipline* *Positive parenting*	5 cohorts (grades 1-5 at T1) assessed annually over 8 years until grades 8-12.	4 classes of parenting identified (authoritative, authoritarian, indulgent and uninvolved) with significant linear or quadratic slopes for monitoring & positive parenting (p>.05):	3
Carrasco et al, (2011)	A	523/ 11.1	Madrid, Spain. 1.3% male, 99% white, 93.6% Spanish, socioeconomic (SE) classification of families was: high class (10.7%), middle class (45.4 %), lower-middle class (41.4 %), & lower class (2.4%). Mean years of education was 15.3 for Mos & 17.2 for Fas. 87.8% two parent households.	The Child Report of Parent Behaviour Inventory Spanish version (M. Carrasco et al., 2007) *Communication/positive affect* *Strict control*	T1 T2 T3 Dates not reported. 3 annual waves	Communication/positive affect Mo/Fa M(SD)^ T1: 57.73(6.63)/56.39(6.63) T2: 57.48(5.95)/55.83(6.63) T3: 57.4(6.4)/55.67(6.86) T1 to T3 r=.32/.36, p<.01 Strict control Mo/Fa T1: 25.35(.19)/24.96(.19) T2: 24.98(.18)/24.45(.18) T3: 24.53(.2)/23.8(.19) T1 to T3 r=.33/.3, p<.01 Strict control significantly decreased over time for Mos (p<.05) & Fas (p>.005)	3

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Willoughby & Hamza (2011)	A	2941/ 14.0	Ontario, Canada. 49.7% male, 92.4% born in Canada, 31% Italian, 18% French, 15% British, 12% German, mean levels of education between some & completed college/university/diploma, 70% living with both parents	Parenting Practices questionnaire (Stattin & Kerr, 2000) *Parental control*	4 out of 5 waves collected 2003-2008 T1: grade 9 T2: grade 10 T3: grade 11 T4: grade 12	Parental control girls/boys T1: 3.09(.64/2.95(.64) T2: 3.04(.73)/2.71(.71) T3: 2.84(.8)/2.6(.72) T4: 2.71(.78)/2.46(.72) Moderate stability reported over time, r=.12 to .48.	4
Schofield et al (2009) Iowa Youth & Families Project	P, A	451/ 13.2	Rural Iowa, USA. 100% white, low to moderate income, mean years of education for both parents=13 years,	parental warmth parental monitoring (Thornberry, 1989, reference missing from article).	T1: 1990 T2: 1992 T3: 1994	Warmth parent report Mo/Fa T1: 3.93(.46)/3.67(.47) T2: 3.93(.47)/3.72(.49) T3: 4.05(.56)/3.77(.58) Warmth adolescent report Mo/Fa T1: 3.51(.77)/3.44(.8) T2: 3.51(.75)/3.42(.78) T3: 3.68(.8)/3.45(.81) Monitoring parent report Mo/Fa T1: 4.28(.36)/4.05(.38) T2: 4.3(.38)/4.01(.43) T3: 4.11(.59)/3.92(.61) Monitoring adolescent report Mo/Fa T1: 3.83(.56)/3.54(.72) T2: 3.84(.6)/3.46(.75) T3: 3.85(.72)/3.46(.87) There were significant correlations for warmth over time, T1-T2 & T2-T3 r=.5 for Fas & r=.53 for Mos	2

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
den Exter Blokland et al (2007)	A	1012/ 12.3	Utrecht, The Netherlands. 51.4% male, 89.8% living with both parents, 95.9% of Dutch origin.	Parenting Scales, Dutch version (Lamborn et al., 1991) *Support* *Control*	T1: Autumn 2000 T2: Spring 2001 T3: Autumn 2001	Support: T1: 4.03 (.53) T2: 3.97 (.61) T3: 3.98 (.64) T1 to T2 r=.53, p<.001 T2 to T3 r=.56, p<.001 Control: T1: 3.51 (.67) T2: 3.45 (.70) T3: 3.47 (.67) T1 to T2 r=.51, p<.001 T2 to T3 r=.53, p<.001	4
Shek (2007)	A	3017/ 12.7	Hong Kong. 44.1% male. 19.6% of fathers & 13.2% of mothers had post secondary education, 84.9% of fathers & 45.1% of mothers in full time employment	The Chinese Paternal & Maternal Psychological Control Scales (CPPCS) (Shek, 2006)	T1 T2 12 month interval	Control Mo/Fa: T1: 21.82(6.79)/21.49(6.39) T2: 22.19(6.69)/21.6(6.31) R=.47/ r=.5, p<.01	3

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Wang et al (2007) US – China Adolescence Study	A	USA: 373/ 12.8 China: 433/ 12.7	Chicago, USA & Beijing, China USA: 49.9% male, 88% European American; 9% Hispanic; 2% African American; 1% Asian American, suburban working & middle class families China: 56.4% male, 100% Chinese decent, working & middle class families	Measures created for this study. Psychological Control Behavioural Control	T1: Autumn T2 Spring	USA: Psychological Control/Behavioural control T1: 2.57(.88)/3.53(.69) T2: 2.51(.99)/3.44(.79) R=.68/.58, p<.001 China: Psychological Control/Behavioural control T1: 2.77(.78)/3.39(.66) T2: 2.92(.84)/3.36(.73) R=.58/.54, p<.001 Between-wave and between-country factorial invariance reported for parent control.	3
Paulson & Sputa (1996)	P & A	244 at T1, 31 at T2	South East & Midwest USA. 40.2% male, 86% white, 6% African-American, 3% Asian, 2% Hispanic, 50% middle class & 50% working class	Parenting style measure created for this study *Demandingness* *Responsiveness*	T1 T2 3 year interval	Demandingness parent report Mo/Fa T1: 3.67(.52)/3.40(.45) T2: 3.48(.68)/3.22(.48) Both less demanding at T2, p<.01 Demandingness adolescent report Mo/Fa T1: 3.16(.71)/2.94(.79) T2: 3.00(.76)/2.96(.79) Responsiveness parent report Mo/Fa T1:4.25(.54)/3.92(.41) T2:4.17(.46)/3.76(.39) Both less responsive at T2, p<.01 Responsiveness adolescent report Mo/Fa T1:3.76(.63)/3.48(.71) T2:3.62(.65)/3.25(.64) Both less responsive at T2, p<.05	2

Authors (year) **Study name (if reported)**	**Source of parenting style report**	**Sample size/ mean age at T1 (years)**	**Progress+ Characteristics reported**	**Parenting style measure** ***Subscales/dimensions***	**Data collection timepoints/ Interval**	**Outcome M(SD)**	**MMAT Score/5**
Johnson & Pandina (1991)	A	1380/ 3 cohorts aged 12, 15 & 18	New Jersey, USA. 90% white, 80% living with natural parents, median income comparable to rest of the state.	Adapted from the Youth Perception Inventory (Streit, 1978) *Warmth/love* *Hostility/control* Age 18 cohort not tested at time 2	T1: 1979-1981 T2: 1982-1984 3 year interval	Warmth reported by males, Mo/Fa Age 12 T1: 80.2/78.4 T2: 78.3/75.4 Age 15 T1: 75.2/72.3 T2: 75.5/72.0 Warmth reported by females, Mo/Fa Age 12 T1: 82.9/79.6 T2: 80.6/75.9 Age 15 T1: 80.7/72.5 T2: 85.0/78.2	4

P, parent; A, adolescent; T, time; ES, effect size; G, Grade; Mo, mother; Fa, father; f/up, follow up

^ SE converted to SD

Evidence for Stability and Change in Parenting

Style

Two studies examined changes in parenting style using the PAQ (Buri, 1991). Georgiou and Charalampous (2024) reported very small reductions in adolescent-reported scores for authoritarian, authoritative, and permissive parenting among Cypriot parents over five months. Statistical significance was not tested due to the study's aims. Moderate relative stability was observed, with significant correlations between T1 and T2 (r=0.41 to 0.59).

In a sample of Catholic adolescents in Australia, Williams and Ciarrochi (2020) and Williams et al. (2012) found significant changes in parenting style over five years. Parents were perceived as becoming more permissive and less authoritative and authoritarian, with all $Fs > 5.4$, $p < 0.05$.

Using a single-item measure of each parenting style, Schroder & Mowen (2014) examined a nationally representative US sample of mid-adolescents over two years. They reported that 53.6% of adolescents experienced a parenting style shift, most commonly from authoritative to permissive (25.5%), indicating a substantial decrease in demandingness.

Demandingness/Control Dimension

Twenty-four studies reported changes in measures of demandingness, including control, supervision, and monitoring, across 37 participant samples. Relative stability from T1 to Tk ranged from r=0.21 to 0.81, with one exception reporting r=0.07.

A meta-analysis of effect sizes (ES) for demandingness/control from T1 to Tk revealed a very small overall effect (g=-0.12, 95% CI=-0.21 to -0.03, prediction interval=-0.58 to 0.34). High heterogeneity was observed (τ^2=0.05; I^2=97.86%) (Figure 2, see also

appendix I for summary statistics). While the confidence interval provides an estimate of how precisely we have estimated the effect size, the prediction interval suggest that in 95% of studies comparable to those included, the true effect size will fall in the interval -0.58 to 0.32.

Egger's test of funnel plot asymmetry was non-significant (intercept=-4.72, CI=-9.94 to 0.5, t=-1.83, p=0.075), indicating no significant publication bias (Figure 3).

A series of subgroup analyses were performed (table 2). Difference between pooled effect sizes was significant for type of control ($p<0.01$), follow up period ($p=0.05$) and stage of adolescence ($p<0.05$). Heterogeneity was high. Behavioural control was more likely to decrease overtime and with a larger effect size than psychological control. Studies with follow-ups exceeding two years showed larger reductions in control than those with shorter follow-ups. Data collection beginning in mid-adolescence (14–15 years) showed larger reductions in control compared to early adolescence (11–13 years).

No significant differences were found between adolescent-reported and parent-reported data.

Table 2

Subgroup Analyses for Demandingness/Control

Subgroup comparison	No. of subgroups	Pooled ES (g)	95% CI	95% PI	τ2	I^2 %	p
Psychological control	15	0.01	-0.13; 0.14	-0.44; 0.45	0.04	98.07	
vs							<0.01
Behavioural control	21	-0.21	-0.31; -0.11	-0.7; 0.28	0.05	97.05	
Adolescent report of parent	31	-0.1	-0.20; -0.1	-0.54; 0.34	0.04	97.45	
vs							>0.05
Parent self-report	6	-0.24	0.45; 0.02	-1.03; 0.56	0.08	98.9	
Follow up≤2 years	17	-0.04	-0.09; 0.02	-0.21; 0.14	0.01	87.11	
vs							<0.05
Follow up >2 years	21	-0.19	-0.34; 0.04	-0.84; 0.46	0.4	98.48	
T1 at ages 11-13	27	-0.06	-0.14; 0.02	-0.42; 0.3	0.03	96.94	
vs							<0.05
T1 at ages 14-15	10	-0.29	-0.50; 0.08	-1.08; 0.5	0.11	98.16	

ES, effect size; T, time; CI, confidence interval; PI, prediction interval.

Figure 2

Forest Plot of T1 to Tk Effect Sizes for Demandingness/control

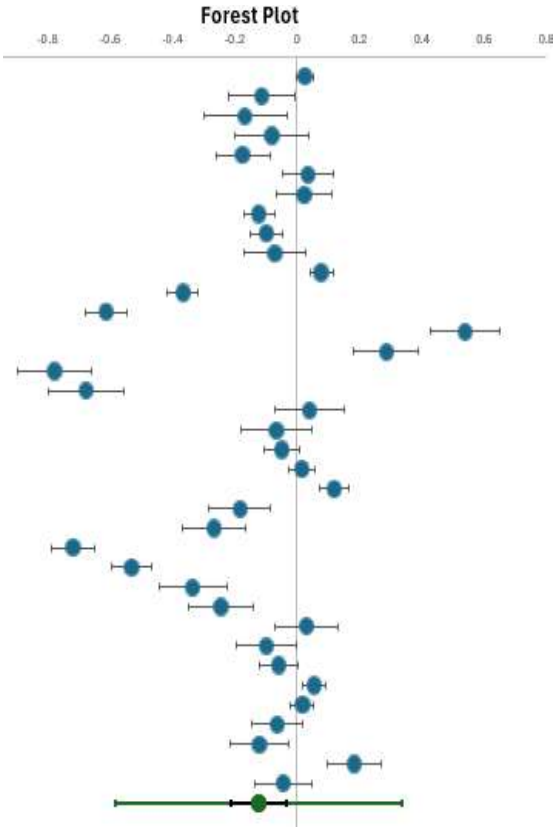
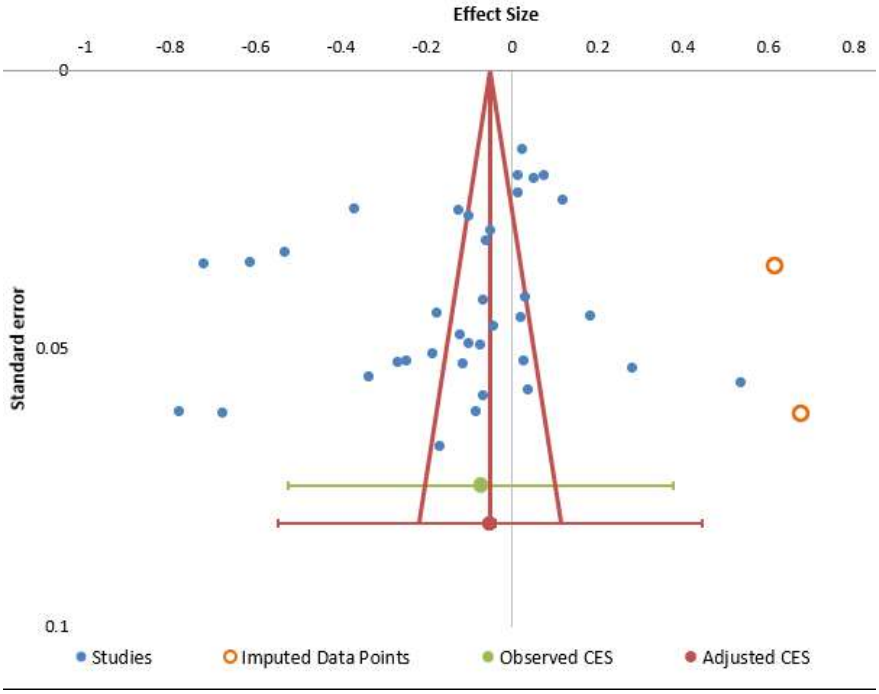


Figure 3

Funnel Plot for Demandingness/Control



Responsiveness/Warmth Dimension

Twelve studies examined changes in responsiveness, warmth, or support across 22 participant samples (Figure 4, see also appendix J for summary statistics). Relative stability from T1 to Tk ranged from r=0.32 to 0.9, although one outlier reported r=0.04. A meta-analysis of the effect sizes (ES) for responsiveness/warmth measures from T1 to Tk indicated a very small effect (g=-0.09, 95% CI=-0.18 to 0.0, prediction interval=-0.3 to 0.21). High heterogeneity was observed, with τ^2=0.02 and I^2=95.86%. A sensitivity analysis, excluding one outlier study (Richardson et al., 2023), which reported an ES of -0.53 for parents and -0.7 for adolescents, reduced the overall ES to g=-0.04 (95% CI=-0.1 to 0.02, τ^2=0.01, I^2=93.57%). This study was removed from further subgroup analyses.

Egger's test of funnel plot asymmetry was non-significant (intercept=0.88, CI=-4.56 to 2.61, t=0.33, p=0.741), suggesting no significant publication bias (Figure 5). Subgroup analyses revealed no significant differences in pooled ES for responsiveness/warmth when comparing parent and adolescent reports, shorter versus longer follow-up periods, or differences in age at the start of data collection (early versus mid-adolescence; Table 3).

Table 3

Subgroup Analyses for Responsiveness/Warmth

Subgroup comparison	**Number of subgroups**	**Pooled ES (g)**	**95% CI**	**τ2**	**I^2 %**	**p**
Adolescent report of parent	12	-0.03	-0.09 to -0.02	0.01	78.43	
vs						>0.05
Parent self-report	6	-0.04	-0.19 to 0.12	0.02	97.5	
Follow up<2 years	11	-0.08	-0.12 to -0.03	0.01	89.8	
vs						>0.05
Follow up 3-6 years	9	0.0	-0.1 to 0.11	0.02	95.94	
T1 at ages 11-12	10	-0.09	0.13 to -0.04	0.01	89.97	
vs						>0.05
T1 at ages 13-15	10	0.0	-0.09 to 0.1	0.02	95.58	

ES, effect size; T, time; CI, confidence interval; PI, prediction interval.

Figure 4

Forest Plot of T1 to Tk Effect Sizes for Responsiveness/Warmth

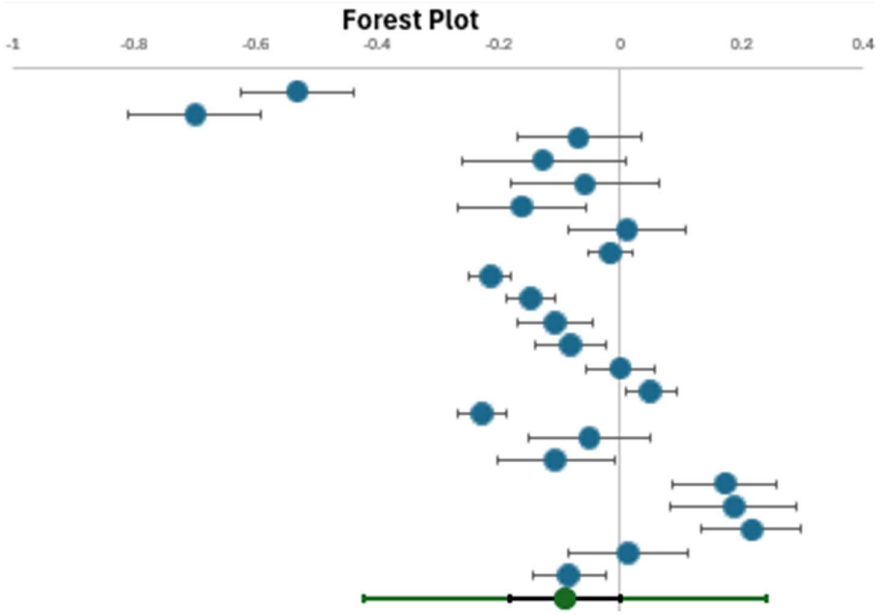
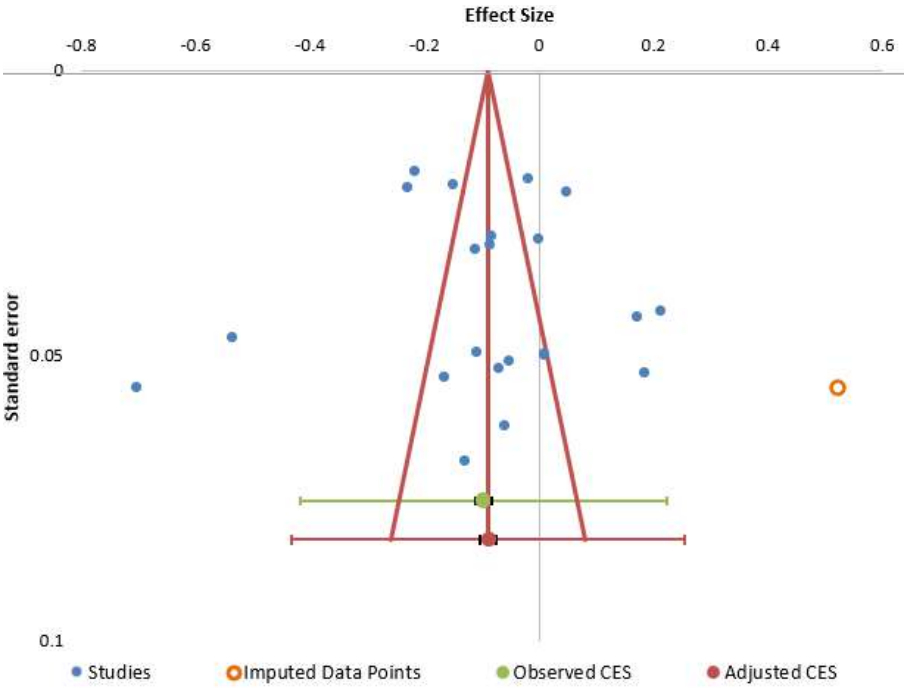


Figure 5

Funnel Plot for Responsiveness/Warmth



Factors Associated with Change in Parenting Style or Dimensions

Eight studies reported variables associated with changes in parenting style or dimensions. A shift towards authoritative parenting was associated with positive outcomes, including improved self-concept and reduced externalising behaviours, as observed in a five-year study of over 1,000 Belgian adolescents (Calders et al., 2020). Similarly, decreases in offending and increases in maternal attachment were noted in a two-year nationally representative sample of 4,389 adolescents aged 12–14 (Schroeder & Mowen, 2014). In contrast, shifts from authoritative to authoritarian parenting were linked to negative outcomes, such as reduced self-concept and increased externalising behaviours (Calders et al., 2020). A transition from authoritative to uninvolved parenting was further associated with increased offending (Schroeder & Mowen, 2014).

Decreasing warmth over adolescence was associated with adverse outcomes. For instance, higher probabilities of substance use by mid-adolescence were observed in an American sample (Meisel & Colder, 2022), while increased symptoms of depression were reported in a large Dutch sample (Lepe et al., 2021). Fluctuations in warmth were also associated with elevated risks for tobacco and substance use in a rural American sample (Lippold, Hussong et al., 2018).

An increase in parental control similarly showed negative associations. In a predominantly female Swiss sample, increased control was linked to higher secrecy and alcohol use (Baudat et al., 2020). In a six-year study of American adolescents, increased control was also associated with reduced self-regulation (Rogers et al., 2019). Conversely, decreasing paternal behavioural control predicted improvements in emotional regulation during later adolescence in a Dutch study (Van Lissa et al., 2019).

Discussion

This review attempted to synthesize findings regarding change in parenting style and dimensions, and factors associated with change, without intervention over the course of adolescence. The studies represented diverse global contexts, with the majority conducted in Europe (k=11) and North America (k=10).

Only three studies directly investigated changes in parenting style, with two using the PAQ (Buri, 1991) and one employing a single-item measure. Among these, two studies indicated long-term shifts (over two to five years) towards a more permissive parenting style. However, these findings are insufficient to draw definitive conclusions about changes in parenting style across adolescence.

Findings from a meta-analysis of 13,756 participants across 24 studies suggest that demandingness/control remains relatively stable in absolute terms, with a pooled effect size of g=-0.12. Interestingly, whether the parent or the adolescent provided the report had no significant impact, despite ongoing debate regarding the accuracy of these perspectives (De Los Reyes & Kazdin, 2005; Stattin & Kerr, 2000; Van Lissa et al., 2019). However, significant reductions in demandingness/control were observed when follow-up periods exceeded two years, when behavioural control was distinguished from psychological control, and in studies focusing on mid-adolescence rather than early adolescence. These findings align with expectations, as behavioural control is likely to decrease as adolescents gain independence during the transition from childhood to youth. Previous research on change on parenting constructs during childhood also found control showed the most variability in magnitude of effect size over time when compared to constructs such as monitoring, responsiveness, non-involvement and positive and negative interaction (Holden & Miller, 1999).

Similarly, a meta-analysis of 15,218 participants across 12 studies revealed a very small effect size of g=-0.09 for responsiveness/warmth. No significant differences were found in effect sizes based on parent versus adolescent reports, shorter versus longer follow-up periods, or the age at the start of data collection.

If parenting dimensions are assumed to be trait-like as these results suggest and so much research has assumed (Forehand & Jones, 2002; O'Connor, 2002), how can human experiences such as the perception of differences in parenting between siblings, at different developmental stages and in response to parenting challenges be explained? Bidirectional models of parenting (Bell, 1968; Sameroff, 1975) provide an alternative. These assume that parenting behaviours are constructed and influenced mutually by both parents and children. For example, Belsky's determinants of parenting model (Belsky, 1984) posits that the child will illicit different parenting behaviours depending on factors such as their temperament, gender or health status. Patterson's coercion model (Patterson, 1982) describes a cyclical reinforcement, whereby child defiance escalates in response to harsh parenting and parents then withdraw which reinforces the defiance. Despite this, bidirectional effects are not well documented in parenting intervention studies designed to target problem behaviours and it has been suggested that research is lagging behind theory (te Brinke et al., 2017). In their 12-month longitudinal study, te Brinke et al (2017) found bidirectional relationships between aggressive child behaviour and changes in parenting in intervention groups but not in a control group. As Holden and Miller noted in 1999, there is still much to understand about the stability of parenting and the underlying psychological processes driving change. They point to enduring characteristics of parents which can exist alongside change in parenting, emphasizing that both can be true. This review has only attempted to document change in community samples, and it is very possible that different trajectories of parenting style and dimensions are identifiable in clinical populations and with intervention.

A small but growing body of research (Baudat et al., 2020; Calders et al., 2020; Lepe et al., 2021; Meisel & Colder, 2022; Rogers et al., 2019; Schroeder & Mowen, 2014; Van Lissa et al., 2019) examined factors associated with changes in parenting style or dimensions. Shifts towards "positive parenting" (characterised by high warmth and moderate control) were associated with improvements in self-concept and emotion regulation and reduced externalising behaviours. Conversely, shifts towards uninvolved or authoritarian parenting styles were associated with negative outcomes, including increased secrecy, substance use, and offending. These shifts do suggest potential for bidirectionality between parenting style and child behaviours and support findings that ineffective parenting is associated with the development and persistence of conduct problems in children and adolescents (Essau et al., 2006; Prinz & Jones, 2003, Hoeve et al., 2009) and that authoritative parenting is associated with fewer internalizing and externalizing problems (Galambos et al., 2003; Steinberg et al., 1994). Further investigation of changes in parenting style and dimensions in intervention studies is required to understand the correlates of change.

A notable challenge highlighted by this review was the considerable variation in the instruments used to measure parenting dimensions. Across the 35 articles, 19 different measures of demandingness/control and warmth/support were reported. This lack of consistency, coupled with inconsistent terminology used to describe parenting style and dimensions, complicates efforts to synthesise data and draw cohesive conclusions.

Limitations

While the broad inclusion criteria strengthen this study by increasing its power, the trade-off is the high heterogeneity observed due to between-study variance in both clinical and methodological aspects. The included studies vary significantly in terms of participants, outcome measures, study designs, and risk of bias. Heterogeneity, as indicated by I^2 and the

prediction interval (Borenstein, 2023), remained high even in subgroup analyses, suggesting a considerable proportion of variance remains unexplained (Ruppar, 2020).

Although cohort effects may plausibly influence patterns in parenting over the past 30 years, reflecting broader cultural, social, and economic shifts, this meta-analysis did not test for such effects. Many studies failed to specify when data collection occurred. Year of publication is not an accurate indicator of this, and this lack of temporal precision precluded a reliable examination of cohort or historical trends. As a result, while we acknowledge the potential for cohort-related variation in parenting, the available data did not support a valid analysis of these effects.

The majority of included studies utilized comprehensive measurement instruments (number of items ranging from eight to 84 items). Specifically, one study used an eight-item scale, six studies used scales with 15 to 30 items, three studies used scales with 31 to 42 items, and four studies employed scales with over 64 items. However, there were some studies using short scales. One study employed a single-item measure of parenting and four studies used scales with an unspecified number of items. Shorter scales inherently have a limited range of possible total scores and thereby there is less opportunity to observe the full variability in responses. Restricted variability makes stability harder to interpret, as it may not reflect its true consistency. Given the predominance of longer measures, this likely only constitutes a minor limitation in this study.

Another limitation lies in the ecological validity of the included studies, as many report samples predominantly comprising adolescents living with two parents. This demographic profile raises concerns about the representativeness of the findings, given that family structures have evolved significantly over the past three decades. The prevalence of single-parent and blended families is now higher than during much of the data collection

period, potentially limiting the generalisability of the findings to more diverse family configurations. While most studies reported reasonable demographic data, they often did not address how representative their samples were of the broader population.

None of the studies included observer measures of parenting style or dimension. While self-report of parenting arguably has better ecological validity than observer report, self-report has been found to be influenced by interpretation of the questionnaire content (Morsbach & Prinz, 2006) and the drive to endorse items considered "good parenting" and avoid items considered "bad parenting" (Lovejoy et al., 1997; Sessa et al., 2001).

In an effort to capture the typical trajectory of parenting style during "normal" adolescence, this review excluded studies involving families with mental or physical health or substance abuse challenges. However, it is unclear how prevalent these issues were within the included samples, and the inherent biases of longitudinal research, particularly in studies requiring self-reporting about parenting, may have affected participation. While such conditions are likely to influence parenting, our decision was guided by the need to focus on normative developmental processes and reduce heterogeneity across studies. Including health-related variables would have considerably expanded the scope of the review and introduced additional complexity regarding inclusion criteria (e.g., whether to consider past vs. present conditions, chronic vs. acute presentations, or parent vs. adolescent diagnoses).

Conclusions and Future Directions

This review synthesises data on changes in parenting style across over 35,000 participants from 12 countries over a span of more than 30 years. The findings indicate that parenting dimensions remain relatively stable in absolute terms throughout adolescence, regardless of whether parents or adolescents report them. Control appears slightly less stable

than warmth, with behavioural control showing a greater reduction over time than psychological control. Control also decreases more markedly in studies with longer follow-up periods or when data collection involves older adolescents. Subgroup analyses suggest that the stability of parenting dimensions, particularly responsiveness/warmth, is robust across varying contexts.

These findings offer reassurance for researchers relying on single-timepoint measures of parenting style, as they suggest minimal risk in assuming stability at the group level. They support for what Holden and Miller (1999) termed “the utility of the snapshot”: parenting behaviours assessed at one timepoint can reflect and enduring characteristic that persists over time. Furthermore, the inclusion of studies employing a wide range of measures for parenting dimensions supports the conclusion that the observed stability is not an artefact of a specific instrument. Evidence for a gradual transition towards a more permissive parenting style over time is limited but warrants further exploration.

A notable limitation in this field is the lack of consistency in how parenting dimensions are measured. The extensive range of instruments used across studies hinders direct comparisons and synthesis, although a consistent pattern of stability is emerging. Greater uniformity in measurement tools would enhance certainty and facilitate more robust conclusions.

Future research should prioritize identifying and elucidating the sources of variability in parenting styles and dimensions. This may involve employing more targeted methodologies to examine changes within specific populations or utilizing standardized measurement tools to enhance comparability across studies. For instance, exploring parenting in families affected by mental and physical health conditions or substance abuse could deepen our understanding of key mediating factors, such as emotional and physical

availability, attachment quality, stress levels, and consistency in parenting behaviours. Additionally, advanced modelling techniques should be employed to examine individual-level changes and their associations with outcomes, providing a fuller understanding of parenting trajectories during adolescence in both community and clinical samples.

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Chapter 3: Bridging Chapter

In chapter 2, I considered how parenting style and dimensions change at the group level over the course of adolescence. When considered in absolute terms, it appears that warmth and control are relatively stable, which is commonly assumed by many researchers in the field of parenting. However, there is more than one way to define stability and the distinctions are relevant. Loeber et al (2000) distinguish between absolute stability, i.e. no difference in group means, relative stability, demonstrated by correlations between time 1 and time 2, and individual stability (where change occurs intra-individually). Chapter 2 explored absolute and relative stability within the concept of parenting. Measuring by group means and correlations over time, parenting dimensions did not change very much in adolescence in the absence of intervention. Parents seem to be quite fixed in the warmth and responsiveness they show their child and the level of control and demandingness they exert over them. But what about individual stability? Examining stability and change in parenting within groups could provide important additional information to group level change. Chapter 4 will consider individual stability, by examining parenting trajectories on an individual level in a sample of young people with behavioural problems. If subgroups of parenting can be identified within a sample, outcomes for this vulnerable group of families can be compared. This allows a better understanding of the nuanced relationship between change and outcomes for young people.

A number of changes were made to the original proposal. Initially, it was hoped that multiple parenting measures could be used to build trajectory models and as many as four outcomes could be explored. A new statistical supervisor joined the supervisory team after the proposal was submitted and he advised that this was a complex analysis which would be beyond the scope of this thesis. After careful consideration, the Alabama Parenting Questionnaire (APQ) (Shelton et al., 1996) was selected to perform modelling. The APQ measures five aspects of parenting that have found to be important for understanding the

causes of conduct problems and delinquency in youth: positive parenting, inconsistent discipline, parental involvement, poor monitoring and supervision and harsh discipline. The decision as to which two subscales to select for modelling was based on the items, positive parenting seeming to be most closely related to the concept of warmth and poor monitoring and control the most closely related to control. However, it cannot be claimed that these subscales are measures of Baumrind's parenting dimensions of responsiveness and demandingness (Baumrind 1996, 2005). The APQ is described as a measure of parenting practice (Elgar et al., 2007; Essau et al., 2006; Shelton et al., 1996) and as far as I am aware, there is no empirical evidence as to how the subscales of the APQ correlate with Baumrind's dimensions.

Two outcomes of the four outcomes were selected on the basis of suitability for outcome analysis: the SDQ conduct disorder and pro-social behaviour. Out of home placement and number of offences data was significantly skewed and would have required more complex transformation prior to outcome analysis to allow for meaningful interpretation.

START trial data was available for the original trial (lasting 18 months) and the follow up trial extending to 60 months post baseline (START 2). Data completion review revealed that there was a lot of missing data in the START 2 dataset, particularly for the APQ. The decision was made to prioritize better completion for modelling and use outcomes collected at 18 months.

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Chapter 4: Empirical Paper

Prepared for submission to Journal of Youth and Adolescence (see Appendix H for author guidelines)

Title Page

Title

Trajectories of Parenting and Their Associations with Adolescent Problem Behaviour Outcomes

Corresponding Author

Tara McFarquhar[abc]

t.mcfarquhar@uea.ac.uk

Co-Authors (order tbc)

Sarah Reeve[ac], Rob Saunders[b], Liz Simes[b,d], Peter Fonagy[b,d]

[a]University of East Anglia, [b]University College London, [c]Cambridgeshire and Peterborough Foundation Trust,[d]Anna Freud.

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Trajectories of Parenting and Their Associations with Adolescent Problem Behaviour Outcomes

Abstract

Understanding parenting trajectories during adolescence and their associations with outcomes can inform interventions to mitigate individual and societal issues. Growth mixture modelling on data from adolescents with moderate to severe antisocial behaviour and their parents identified distinct groups based on reports of positive parenting and monitoring/supervision. Positive parenting remained more stable over time according to parental reports than adolescent reports. Better outcomes were associated with higher levels of positive parenting reported by parents, while increases in monitoring/supervision correlated with poorer outcomes. Clinicians should consider both parent and adolescent perspectives and recognise the risk of adverse outcomes when monitoring/supervision intensifies substantially. Future research should incorporate multi-timepoint data collection for parenting measures and explore novel approaches to assessing monitoring/supervision.

Key Words

Parenting styles, parenting dimensions, adolescents; behavioural problems; trajectories, outcomes.

Registration

The study was registered with OSF https://osf.io/qj6p4/ on 21.09.2023 (appendix C).

Introduction

Parenting is a critical factor in the development of behavioural problems in children and adolescents and is frequently targeted in interventions delivered by schools, Child and Adolescent Mental Health Services (CAMHS), social care, and other agencies supporting

young people. Adverse parenting is a well-established risk factor for a range of behavioural and health problems, including conduct disorder (CD), cardiovascular disease, mental health conditions, obesity, and substance misuse (Stewart-Brown, 2008). Most major theories of the development of serious conduct problems centre on parenting (Frick & Viding, 2009), and the World Health Organization strongly advocates parenting interventions for children and adolescents, citing robust evidence of their effectiveness in reducing child maltreatment and internalising and externalising behaviours (World Health Organization, 2022).

The optimisation of parenting interventions and preventative strategies for young people with behavioural problems should be a priority for policymakers. Adolescent antisocial behaviour is a core characteristic of Conduct Disorder (CD), a clinical syndrome with significant personal, interpersonal, and societal costs. In the UK, approximately 6% of 11–16-year-olds are diagnosed with conduct problems (NHS, 2017). These individuals frequently present with additional mental health conditions; 46% of boys and 36% of girls diagnosed with CD have at least one co-occurring mental health disorder (NICE, 2017). Adolescents with CD are also at heightened risk of developing persistent psychological and behavioural difficulties (Blair et al., 2014) and psychiatric disorders in adulthood, including depression, anxiety, and suicidal behaviour (Fergusson et al., 2005). Public sector costs for these individuals are estimated to be ten times higher by age 28 than for those without CD (Bonin et al., 2011). A deeper understanding of the relationship between parenting and adolescent behavioural problems could improve the targeting of interventions, alleviating distress in families and reducing pressure on overstretched services.

Evidence suggests that the development and persistence of conduct problems in children and adolescents are linked to specific ineffective parenting behaviours (Essau et al., 2006; Prinz & Jones, 2003), such as inconsistent discipline, inadequate monitoring and

supervision, and low levels of positive involvement (Capaldi et al., 1997; Frick et al., 1992; Wasserman et al., 1996). A lack of parental monitoring and supervision is one of the strongest predictors of juvenile conduct problems and delinquency, as demonstrated in a meta-analysis of 300 studies (Loeber & Stouthamer-Loeber, 1986). More recently, a meta-analysis of 161 studies identified parental rejection, neglect, and poor supervision as key predictors of delinquency, defined as "behaviour prohibited by the law" (Hoeve et al., 2009). Conversely, authoritative parenting, characterised by high warmth and involvement, is associated with fewer internalising and externalising problems (Galambos et al., 2003; Steinberg et al., 1994) and greater pro-social behaviour (Padilla-Walker et al., 2012).

Much of the research on parenting assumes that parenting styles function as stable, trait-like characteristics, with parents adopting a single style—a combination of demandingness and warmth—that remains unchanged over time (Forehand & Jones, 2002). Studies typically assess parenting styles, dimensions, or practices at a single time point and examine the resulting scores or categories (e.g., authoritative, authoritarian, permissive, uninvolved; Baumrind, 1966; Maccoby & Martin, 1983) in relation to outcomes such as mental health status or criminal offending. This approach assumes that all individuals belong to a single population characterised by one set of parameters. However, this assumption neglects the possibility of multiple distinct populations in which parenting practices may change over time (Holden & Miller, 1999; Schroeder & Mowen, 2014).

While extensive cross-sectional research links specific parenting styles, dimensions, and practices to outcomes in young people (Prinz & Jones, 2003), less is known about longitudinal changes in parenting and how specific changes influence outcomes in behavioural intervention programmes (Hoeve et al., 2009). Some researchers have cautioned against relying on single-timepoint measures of parenting, arguing that such approaches fail

to capture the dynamic and interactional nature of family relationships (O'Connor, 2002). Although both researchers and the general public assume a link between parenting and behavioural issues such as delinquency—hence the prevalence of parenting interventions—identifying the precise nature and magnitude of this relationship has been challenging (Hoeve et al., 2009). Investigating changes in parenting constructs during adolescence may offer deeper insights into the relationship between parenting trajectories and outcomes. This is particularly relevant for adolescents with behavioural problems, for whom parenting interventions are the primary recommended non-pharmacological treatment (Dekkers et al., 2024).

The current study

This study employed longitudinal data modelling to identify statistically distinct trajectories of parenting, as measured by the Alabama Parenting Questionnaire (APQ) (Shelton et al., 1996), in adolescents with behavioural problems. It further examined the relationships between these trajectories and long-term outcomes for these young people. Growth Mixture Modelling (GMM) was utilised to statistically compare differences in prototypical patterns of change, enabling the identification of multiple unobserved population subgroups and describing longitudinal variations within them (Ram & Grimm, 2009).

Two research questions were addressed. Firstly, what distinct trajectories can be identified in two APQ subscales (positive parenting and monitoring/supervision) in parents of adolescents exhibiting behavioural problems? Secondly, are these trajectories associated with conduct problems and pro-social behaviour outcomes at an 18-month follow-up in an intervention trial? It was hypothesised that trajectories of increased positive parenting and increased monitoring/supervision (i.e., a reduction in scores on the poor

monitoring/supervision subscale) would be associated with fewer conduct problems and greater pro-social behaviour, controlling for baseline scores.

Methods

Participants

The sample comprised 683 adolescents, including 433 males and 250 females, along with one parent per adolescent, who participated in the longitudinal Systemic Therapy for At-Risk Teens (START) trial. This Randomised Controlled Trial (RCT) compared Multi-Systemic Therapy (MST) with Management as Usual (MAU) (Fonagy et al., 2020). Complete outcome data were available for 433 families across 9 sites in England. The START 1 trial received ethical approval from the London Southeast Research Ethics Committee (09/H1102/55, appendix B), Randomisation took place between February 2010 and September 2012 and participants were followed up for 18 months. Data collection was overseen by an independently chaired Trial Steering Committee and a Data Monitoring and Ethics Committee. Participants provided written informed consent and were informed that they could withdraw at any time without affecting their care. This secondary analysis was approved by the University of East Anglia Faculty of Medicine and Health Sciences Research Ethics Subcommittee (Application ID: ETH2324-0328, appendix A).

MST is a home-based intervention designed for adolescents exhibiting severe antisocial behaviour, aiming to prevent reoffending and out-of-home placements. Therapists worked intensively with families over a period of three to five months to improve parenting skills, strengthen relationships, facilitate support from social networks, enhance communication, promote adaptive behaviours, and reduce maladaptive patterns. MAU was delivered by Youth Offending Teams (YOTs), Child and Adolescent Mental Health Services (CAMHS), and social and educational services, providing the best available local

interventions tailored to individual needs. Support included education re-engagement, anger management, and victim awareness programmes. Since the RCT detected no significant treatment effects, the sample was deemed sufficiently homogenous to allow both trial arms to be merged for this secondary analysis, with intervention group assignment included as a potential confounding variable.

At trial entry, adolescents had a mean age of 13 years (range: 11–18) and met at least one criterion for antisocial behaviour: persistent (weekly) and enduring (≥6 months) violent and aggressive interpersonal behaviour, at least one conviction plus three additional warnings, reprimands, or convictions, a conduct disorder diagnosis according to DSM-IV criteria that had not responded to prior treatment, permanent school exclusion due to antisocial behaviour, or significant risk of harm to others or self.

The sample was predominantly male (63.4%), and White British or European, making up 78.3%. A majority of the participants, 77% of those randomised, were from low-to-moderate socioeconomic backgrounds and received state benefits. Most of the adolescents, accounting for 81%, had a diagnosis of conduct disorder or oppositional defiant disorder. Adolescents with psychosis, generalised learning difficulties, or presenting concerns for which MST lacks empirical validation, such as substance abuse without criminal conduct or isolated sex offending, were excluded from the trial.

Recruitment was conducted through social services, youth offending teams, schools, CAMHS, and voluntary sector organisations at nine pilot sites across England. Full eligibility criteria are detailed in Fonagy et al. (2018).

Measures

Parenting

Parenting trajectories were assessed using two subscales of a brief 15-item version of the Alabama Parenting Questionnaire (APQ) (Shelton et al., 1996), completed by both parents and adolescents. The APQ evaluates parenting dimensions associated with conduct problems and delinquency in older children and adolescents, including positive parenting, consistent discipline, involvement, poor monitoring/supervision, and harsh discipline. Internal consistency of the subscales has been reported to be moderate ($\alpha = 0.57$ to $\alpha = 0.62$), with test-retest reliability ranging from moderate to high ($r = 0.6–0.8$).

The *positive parenting subscale* consists of three items, with higher scores indicating greater positive parenting (range 0-15): **"***You let your child know when he/she is doing a good job with something", "You compliment your child after he/she has done something well", and "You praise your child if he/she behaves well".* The *monitoring/supervision subscale* also comprises three items, with higher scores reflecting poorer monitoring/supervision (range 0-15): **"***Your child fails to leave a note or let you know where he/she is going", "Your child stays out in the evening past the time he/she is supposed to be home"*, and *"Your child is out with friends you don't know".* These items were reworded for adolescent self-report. APQ data were collected at four time points: baseline, six months, 12 months, and 18 months.

Behavioural outcomes

Behavioural outcomes were assessed using two subscales (comprised of 5 items each, range=0-10) of the Strengths and Difficulties Questionnaire (SDQ) parent report (Goodman, 2001) at 18 months post-baseline. The SDQ has demonstrated satisfactory reliability, with mean internal consistency (Cronbach's $\alpha = 0.73$), cross-informant correlation (mean = 0.34), and retest stability over four to six months (mean = 0.62).

Conduct problems were measured using the *SDQ conduct problems subscale* at 18 months, controlling for baseline scores. Pro-social behaviour was assessed using the *pro-social behaviour subscale* of the SDQ parent report at 18 months, also controlling for baseline scores.

Analysis Plan

Baseline characteristics of the sample were explored, and descriptive statistics were calculated for the APQ and SDQ subscales. Completers and non-completers were compared on parent-reported baseline characteristics to assess potential biases.

Mplus version 8.11 (L. K. Muthén & Muthén, 1998) was used to address the first research question regarding the identification of statistically distinct trajectories in parenting. Growth Mixture Modelling (GMM) was employed to detect heterogeneous subgroups within the positive parenting and monitoring/supervision APQ subscale scores. GMM is a longitudinal clustering technique commonly applied in patient health outcomes research to examine variability over time, allowing for both between-class and within-class variability (Ram & Grimm, 2009). It enables the identification of subgroups demonstrating statistically distinct parenting trajectories (Jung & Wickrama, 2008; B. Muthén, 2001). Following best practice when no prior hypothesis exists (Wickrama et al., 2021), models were estimated sequentially, beginning with a two-class solution and increasing the number of classes until model fit was no longer improved. Linear, quadratic, cubic, and free-loading trajectory models were tested to determine the best-fitting solution.

Parent and adolescent ratings on the APQ subscales were modelled separately, as evidence suggests significant discrepancies between these perspectives. Specifically, parents tend to report more positive parenting and lower levels of poor monitoring/supervision

compared to adolescents ($p < 0.001$ for both measures; Scott et al., 2011). Missing data were addressed using full information maximum likelihood estimation (FIML).

Model selection was guided primarily by the Vuong-Lo-Mendell-Rubin Likelihood Ratio Test (VLMR-LRT) (Lo et al., 2001) and the sample size-adjusted Bayesian Information Criterion (aBIC) (Nylund et al., 2007). A significant VLMR-LRT ($p < 0.05$) indicates superior model fit relative to a model with one fewer class. Greater emphasis was placed on the VLMR-LRT in determining the optimal number of classes because it provides a direct hypothesis test of model improvement, offering clearer guidance on whether an additional class represents meaningful heterogeneity in the population rather than overfitting to sample noise, thereby reducing the risk of over extraction of classes (Lo et al., 2007; Nylund et al., 2007). Lower aBIC values indicate better fit, however they tend to continue decreasing with each additional class, often making it difficult to identify a clear stopping point. The aBIC was used in conjunction with the VLMR-LRT to confirm whether decreases in model fit indices plateaued, suggesting diminishing returns in model complexity. Entropy was also considered, higher values (closer to 1) reflecting greater classification accuracy and homogeneity within groups (Asparouhov & Muthén, 2012; Jung & Wickrama, 2008; Geiser, 2013). Once the optimal class solution was determined, individuals were assigned to the subgroup for which they had the highest probability of membership.

To address the second research question regarding differences in behavioural outcomes between identified parenting trajectories, General Linear Models (GLMs) were conducted in IBM SPSS version 28 (IBM Corp., 2021). Univariate GLMs examined differences in conduct disorder and pro-social behaviour subscale scores at 18 months across parenting classes identified in the APQ data for both parents and adolescents. Age, gender, ethnicity (dummy coded), treatment group, and baseline subscale scores were included as

covariates in all models. Bootstrapping was applied to account for unequal class sizes, and homogeneity of variance was assessed using Levene's test.

Results

Baseline characteristics and behavioural outcomes for the full sample are presented in Table 1. Descriptive statistics, including means and standard deviations for APQ subscales over the 18-month data collection period, are shown in Table 2. Missing data rates for APQ data ranged from 0.4% at baseline to 35.9% at 18 months for parents, and from 0.6% at baseline to 35.6% at 18 months for adolescents. There was a strong association between parent and adolescent attrition at 18 months, $\chi^2(1, N = 683) = 355.26$, $p < .001$, Cramér's $V = .721$. Comparisons of baseline characteristics between completers and non-completers, calculated based on parent attrition, are reported in Table 3. The only significant difference between the groups was adolescent age, with completers being approximately six months younger than non-completers. No significant differences were observed for gender, ethnicity, baseline parent-rated conduct disorder, pro-social behaviour, positive parenting, or monitoring/supervision.

Table 1

Full sample baseline characteristics and outcomes of adolescents

Characteristic/outcome	N (%)	M (SD)	Range
MST/MAU	342/341 (50.1/49.9)	-	-
Male/Female	433/250 (63.4/36.6)	-	-
Age	683 (100)	13.8 (1.4)	11-17
Ethnicity			
White British	535 (78.3)		
Black African/Afro-Caribbean	71 (10.4)		
Asian	16 (2.3)		
Mixed/Other	51 (7.5)		
Unknown	10 (1.5)		
SDQ conduct disorder baseline	680	6.6 (2.4)	0-10

SDQ conduct disorder 18 months	443	4.5 (2.6)	0-10
SDQ pro-social behaviour baseline	680	5.3 (2.5)	0-10
SDQ pro-social behaviour 18 months	441	6.0 (2.5)	0-10

Note. MST: Multi-Systemic Therapy Group, MAU: Management as Usual, SDQ: Strengths and Difficulties Questionnaire, parent report.

Table 2

APQ subscale means and SDs by timepoint and respondent

Timepoint	APQ Positive Parenting			APQ Supervision/Monitoring		
	N	Mean	SD	N	Mean	SD
Parent						
Baseline	680	12.65	2.32	680	9.33	3.33
6months	558	12.93	2.26	558	8.06	3.4
12 months	481	12.9	2.21	479	7.95	3.31
18 months	439	12.84	2.28	438	7.68	3.32
Adolescent						
Baseline	679	10.17	3.28	679	8.56	2.89
6months	553	10.79	3.17	552	7.78	2.88
12 months	479	11.03	3.26	474	7.8	3.05
18 months	442	11.16	3.15	440	7.61	3.04

Table 3

Comparison of parent completers (n=441) vs non completers (n=242) on parent reported baseline characteristics

Characteristic	N/Mean (SD)		Statistic	p
	Completers	Non completers		
Adolescent age	13.7(1.4)	14.1(1.5)	t=3.79	<0.001
Adolescent gender				
Male	272	161	χ^2=1.59	=0.208
Female	169	81		
Ethnicity				
White British	348	187		
Black African/Afro-Caribbean	40	31		
Asian	13	3	χ^2=4.20	=0.24
Mixed other	34	17		
APQ Positive Parenting	12.7(2.4)	12.6(2.3)	t=-0.27	=0.784

APQ Monitoring/Supervision	9.2(3.3)	9.3(3.4)	t=1.84	=0.067
SDQ Conduct Disorder	6.5 (2.3)	6.8 (2.6)	t=1.18	=0.239
SDQ Pro Social Behaviour	5.4(2.4)	5.1(2.6)	t=-1.75	=0.081

Identifying Trajectories of Positive Parenting and Monitoring/Supervision

GMM was conducted using linear, quadratic, cubic, and free-loading models separately for APQ positive parenting and monitoring/supervision subscale scores across four time points, from baseline to 18 months (Appendix K). Table 4 presents the goodness-of-fit indices for the GMMs.

Table 4

GMM Fit Statistics

Classes	aBIC	VLMR-LRT P value	Entropy	% of sample in each class
Parent Positive Parenting				
2	**8965**	**0.0012**	**0.773**	**79/21**
3	8872	0.2403	0.711	30/19/51
Parent Supervision/Monitoring				
2	10674	0.0001	0.631	38/62
3	**10664**	**0.0284**	**0.541**	**21/40/39**
4	10663	0.147	0.614	9/31/36/24
Adolescent Positive Parenting				
2	**10730**	**0.0018**	**0.748**	**81/19**
3	10708	0.0515	0.716	8/20/72
Adolescent Supervision/Monitoring				
2	**10512**	**0.0252**	**0.517**	**33/67**
3	10506	0.073	0.581	30/48/22

Note. Selected model indicated in bold.

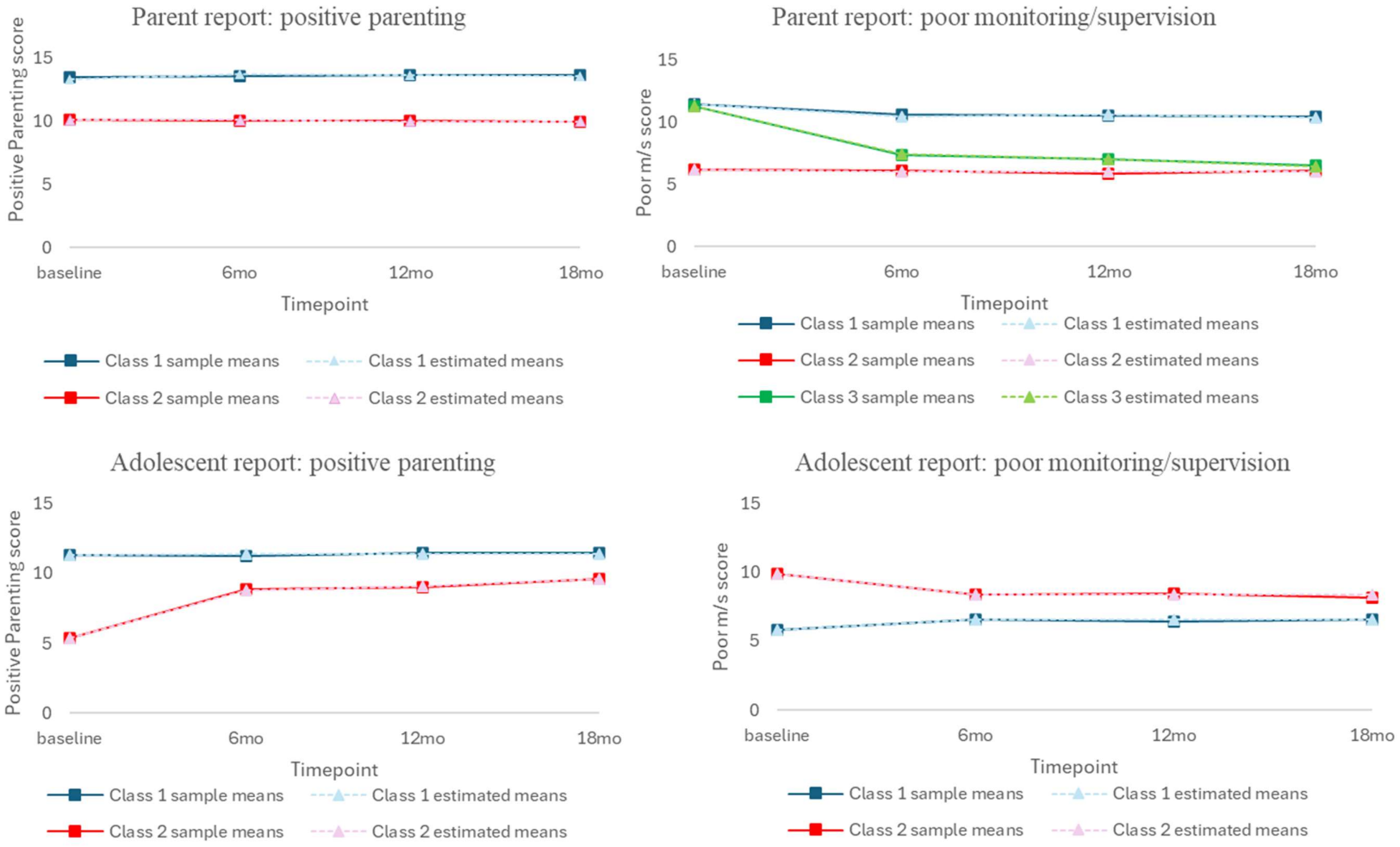
For parent reports, the best-fitting model for positive parenting was a two-class linear solution, as the VLMR-LRT p-value was no longer significant beyond two classes, while the aBIC increased and entropy declined. For monitoring/supervision, a three-class free-loading model provided the best fit, beyond which the VLMR-LRT p-value was no longer significant,

aBIC had plateaued and the smallest class comprised less than 10 per cent of the sample. Although entropy increased for a four-class solution, this statistic is more vulnerable to over extraction and the VLMR-LRT significance was given greater weight.

For adolescent reports, a two-class free-loading model provided the best fit for both positive parenting and monitoring/supervision. At three classes, the aBIC began to decline, and the VLMR-LRT was non-significant. In a four-class solution for positive parenting, the smallest class represented only eight per cent of the sample. Class trajectories are depicted in Figure 1. Estimated and marginal means were closely aligned, indicating a good model fit.

Figure 1

Class trajectories for parent and adolescent report of positive parenting and poor supervision/monitoring over 18 months



Note. Higher scores in poor monitoring/supervision indicate less, more lenient supervision/monitoring, lower scores more stricter.

Class Summaries

Parent-Reported Positive Parenting

Class 1: **"High and consistent positive parenting"** (79% of parents), characterised by higher-than-average levels of positive parenting (mean score = 13.5) that remained stable over time (slope = 0.068, p = 0.293).

Class 2: **"Moderate and consistent positive parenting"** (21% of parents), characterised by moderate but lower-than-average positive parenting (mean score = 10.1), which remained stable over time (slope = -0.052, p = 0.778).

Adolescent-Reported Positive Parenting

Class 1: **"High and consistent positive parenting"** (81% of adolescents), with initially higher-than-average positive parenting (mean score = 11.3) remaining stable over time (slope = 0.069, p = 0.583).

Class 2: **"Low with increased positive parenting"** (19% of adolescents), reporting initially much lower-than-average positive parenting (mean score = 5.4), which significantly increased after intervention (mean score = 8.9, slope = 3.434, p < .001) and remained stable thereafter.

Parent-Reported Monitoring/Supervision

Class 1: **"Lenient with small step up in monitoring/supervision"** (21% of parents), reporting initially lenient supervision (mean score = 11.2) with a small but significant increase in supervision following the intervention (slope = -3.887, p < .001).

Class 2: **"Moderate and consistent monitoring/supervision"** (40% of parents), reporting stricter-than-average but stable supervision (mean score = 6.2, slope = -0.175, p = 0.428).

Class 3: **"Lenient with large step up in monitoring/supervision"** (39% of parents), reporting initially lenient supervision (mean score = 11.2), followed by a significant increase in monitoring post-intervention (approximately three points), continuing to rise between six and 18 months by around one point (slope = -0.821, p = 0.005).

Adolescent-Reported Monitoring/Supervision

Class 1: **"Moderate with stepped down monitoring/supervision"** (33% of adolescents), reporting moderate supervision initially (mean score = 5.8), which decreased by around one point after the intervention (slope = 0.782, p = 0.002).

Class 2: **"Lenient with stepped up monitoring/supervision"** (67% of adolescents), reporting initially lenient supervision (mean score = 9.9), followed by a significant increase in monitoring after the intervention (slope = -1.57, $p < .001$).

Relationship Between Class Membership and Outcomes

Differences in SDQ conduct disorder and pro-social behaviour subscale scores at 18 months were compared across identified parenting trajectory classes. One-way between-subjects ANCOVAs, controlling for baseline subscale scores, age, gender, treatment group, and ethnicity, are reported in Tables 5 and 6. Levene's test was non-significant ($p > .05$) in all models, indicating equal variances.

Positive Parenting and Conduct Disorder

Parent-reported positive parenting class membership had a significant effect on conduct disorder scores at 18 months, although the effect size was small, $F(1,426) = 10.03$, $p = .002$, $\eta p^2 = .023$. Parents in the high and consistent positive parenting class (Class 1)

reported lower conduct disorder scores at 18 months (EMM = 4.31) compared to those in the moderate and consistent positive parenting class (Class 2, EMM = 5.25).

Positive Parenting and Pro-Social Behaviour

Parent-reported positive parenting class membership also had a significant effect on pro-social behaviour scores at 18 months, $F(1,424) = 10.85$, $p = .001$, $\eta p^2 = .025$. Parents in the high and consistent positive parenting class (Class 1) rated pro-social behaviour higher at 18 months (EMM = 6.21) than those in the moderate and consistent positive parenting class (Class 2, EMM = 5.3).

In contrast, when class membership was determined by adolescent reports, no significant effect was found on either conduct disorder or pro-social behaviour scores at 18 months.

Monitoring and Supervision and Conduct Disorder

Monitoring and supervision class membership had a significant effect on conduct disorder scores at 18 months when determined by both parent reports ($F(1,424) = 16.22$, $p < .001$, $\eta p^2 = .071$, medium effect) and adolescent reports ($F(1,424) = 10.85$, $p = .001$, $\eta p^2 = .025$, small effect).

Adolescents who initially reported lenient monitoring/supervision, which increased after intervention (Class 2) had higher conduct disorder scores (EMM = 4.71) compared to those who initially reported moderate monitoring/supervision, which decreased after intervention (Class 1, EMM = 3.97).

For parent-reported monitoring/supervision, post hoc tests revealed a significant difference between the group with lenient supervision and a small step up (Class 1) and the

group with lenient supervision and a large step up (Class 3) ($p < .001$). A significant difference was also observed between the moderate and consistent supervision group (Class 2) and Class 3 ($p < .001$). Comparison of the estimated marginal means indicated that conduct disorder scores were highest for Class 3 (EMM = 5.26), compared to Class 2 (EMM = 4.18) and Class 1 (EMM = 3.6).

Monitoring and Supervision and Pro-Social Behaviour

Monitoring and supervision class membership based on adolescent reports had no significant effect on pro-social behaviour scores at 18 months. However, when determined by parent reports, a significant effect was found, $F(1,423) = 11.25$, $p < .001$, $\eta p^2 = .051$.

Post hoc tests indicated significant differences between all classes ($p < .001$ to $p = .029$). Comparison of the estimated marginal means showed that pro-social behaviour scores were highest for parents in Class 1 (lenient supervision with a small step up, EMM = 6.89) compared to those in Class 2 (moderate and consistent supervision, EMM = 6.18) and Class 3 (lenient supervision with a large step up, EMM = 5.48).

Table 5

Difference between SDQ Pro Social Behaviour subscale scores at 18 months by class

APQ subscale	Class	N	Pro-Social score EMM	Effect of class		Partial Eta sq	Pairwise comparisons*
				F	sig		Mean difference, p, [CI]
Parent positive parenting	1 high & consistent	352	6.21	10.85	0.001	0.025	n/a
	2 moderate & consistent	81	5.3				
Adolescent positive parenting	1 high & consistent	368	6.0	1.26	0.262	0.003	n/a
	2 low with increase	64	6.35				
Parent monitoring/supervision	1 lenient, small step up	78	6.89	11.25	<.001	0.051	1-2=0.71, 0.029, [0.09, 1.34]
	2 moderate & consistent	190	6.18				1-3=1.40, <0.001, [0.73, 2.06]
	3 lenient, large step up	165	5.48				2-3=0.70, 0.004, [0.21, 1.19]
Adolescent monitoring/supervision	1 moderate, stepped down	132	6.23	1.20	0.274	0.003	n/a
	2 lenient, stepped up	300	5.97				

EMM, estimated marginal mean; *bootstrapped Sidak adjustment; n/a, not applicable

Table 6

Difference between SDQ Conduct Disorder subscale scores at 18 months by class

APQ subscale	Class	N	Conduct Disorder EMM	Effect of class		Partial Eta sq	Pairwise comparisons*
				F	sig		Mean difference, p, [CI]
Parent positive parenting	1 high & consistent	354	4.31	10.03	0.002	0.023	n/a
	2 moderate & consistent	81	5.25				
Adolescent positive parenting	1 high & consistent	370	4.48	0.00	0.993	0	n/a
	2 low with increase	64	4.49				
Parent monitoring/supervision	1 lenient, small step up	79	3.6	16.22	<.001	0.071	1-2=-0.58, 0.2, [-1.35, 0.19]
	2 moderate & consistent	190	4.18				1-3=-1.67, <.001, [-2.42, -0.91]
	3 lenient, large step up	166	5.26				2-3=-1.08, <.001, [-1.72, -0.45]
Adolescent monitoring/supervision	1 moderate, stepped down	132	3.97	8.47	0.004	0.02	n/a
	2 lenient, stepped up	302	4.71				

EMM, estimated marginal mean; *bootstrapped Sidak adjustment; n/a, not applicable

Discussion

This study addressed two research questions: first, whether distinct trajectories of positive parenting and monitoring/supervision could be identified in a sample of adolescents with moderate to severe behavioural problems, and second, whether these trajectories were associated with conduct disorder and pro-social behaviour outcomes at 18-month follow-up in an intervention trial. The findings indicate that distinct parenting trajectories can be identified in both parent and adolescent reports, and these trajectories are associated with outcomes after controlling for demographics and baseline scores, although not entirely as hypothesised.

Parents reported consistent levels of positive parenting over 18 months, with two subgroups emerging: 79 % of parents reported high positive parenting, while 21% reported moderate positive parenting. Adolescents whose parents belonged to the high positive parenting class had significantly lower conduct disorder scores and higher pro-social behaviour scores compared to those in the moderate class. However, when reported by adolescents, 81% described their parents' positive parenting as high and consistent, while 19% identified initially low levels of positive parenting that increased significantly after intervention. Notably, no significant differences in conduct disorder or pro-social behaviour outcomes were found between these adolescent-reported trajectories.

As expected, higher parent-reported positive parenting was associated with better behavioural outcomes, but there was no evidence to suggest that positive parenting changed over time when reported by parents. A subgroup of adolescents perceived an increase in their parents' positive parenting, yet this was not associated with improved outcomes. This discrepancy between parent and adolescent perspectives suggests that perceived changes in

parenting behaviour may not necessarily translate into measurable differences in conduct disorder or pro-social behaviour.

Among parents, three monitoring/supervision trajectories were identified: lenient with a small step up (21%), moderate and consistent (40%), and lenient with a large step up (39%). At 18 months, conduct disorder scores were significantly higher and pro-social behaviour scores significantly lower for the lenient with a large step up group compared to the other two groups, despite the substantial increase in parent-reported monitoring post-intervention. Additionally, pro-social behaviour scores were higher for the lenient with a small step up group compared to the moderate and consistent group.

For adolescent-reported monitoring/supervision, two classes were identified: moderate with stepped-down monitoring/supervision (33%) and lenient with stepped-up monitoring/supervision (67%). While these classes had no effect on pro-social behaviour scores, conduct disorder scores were significantly higher for adolescents who reported lenient monitoring/supervision that increased post-intervention.

These findings suggest that a subset of families, identified by both parents and adolescents as having lenient monitoring/supervision before intervention, experience worse behavioural outcomes despite increases in supervision. This contradicts the hypothesis that more monitoring/supervision would lead to better outcomes. One possible explanation is that while a modest increase in monitoring may be beneficial, more extreme or sudden increases could have adverse effects. Research has suggested that authoritarian parenting, characterised by high control and low warmth, is linked to increased externalising behaviours in adolescents (Baumrind, 1996; Calders et al., 2020). Specifically, heightened behavioural control has been associated with greater delinquency (Barber et al., 1994), and studies with

middle adolescents indicate that a perceived controlling parental approach to limit-setting is linked to increased oppositional defiance of parental rules (Vansteenkiste et al., 2014).

It is also possible that increasing conduct disorder-related behaviours and declining pro-social behaviour drive parental increases in monitoring/supervision. This aligns with reciprocal models of parenting, which propose a bidirectional relationship between parenting practices and adolescent behaviour (Lewis, 1981). Research suggests that when adolescents engage in positive behaviours, parents tend to become warmer and less hostile, whereas problematic behaviours often elicit greater parental hostility, punitiveness, and reduced patience (Clark et al., 2000; Kiff et al., 2011; Williams & Steinberg, 2011). As adolescent behaviour becomes increasingly difficult, parents may resort to harsher disciplinary strategies and withdraw from active involvement in their child's socialisation (Patterson, 1982).

Changing social norms surrounding parental monitoring may also contribute to these findings. The way parents monitor adolescents' behaviour has shifted considerably, particularly with the rise of digital technology. Research conducted before the rapid expansion of digital surveillance tools may not fully capture contemporary parental monitoring practices. The Alabama Parenting Questionnaire (APQ) was developed in the 1990s and does not assess the monitoring of online activities, including content viewed, GPS tracking, and digital interactions. For parents of the millennial generation onwards, digital monitoring may represent a primary form of supervision, potentially limiting the applicability of older measures of parenting.

The identified parenting trajectories differed substantially between parent and adolescent reports. Approximately one-fifth of adolescents perceived initially low but increasing levels of positive parenting, a pattern that was not reflected in parent-reported classes. Similarly, while the largest parent-reported class characterised

monitoring/supervision as moderate and consistent, one-third of adolescents perceived a decline in monitoring over time.

The effects of class membership on behavioural outcomes also varied depending on whether parenting trajectories were based on parent or adolescent reports. When using parent-reported classes, both positive parenting and monitoring/supervision influenced conduct disorder and pro-social behaviour outcomes. However, when using adolescent-reported classes, positive parenting had no effect on either outcome, while monitoring/supervision influenced only conduct disorder scores.

There is ongoing debate regarding the most reliable source of parenting reports. Some studies suggest that adolescent-reported parenting has stronger predictive validity than parent-reported measures, offering unique insights into how parenting practices affect outcomes (Barry et al., 2008; Scott et al., 2011). Adolescents' perceptions of parenting—rather than the behaviours parents report engaging in—may be more relevant in shaping their emotional and behavioural responses (Barry et al., 2008; Stattin & Kerr, 2000; Van Lissa et al., 2019). Additionally, research indicates that adolescents tend to provide less positive ratings of parenting than their parents, a pattern also observed in this study (Scott et al., 2011).

This study provides further evidence that parents and adolescents perceive and report parenting differently. It is possible that parents involved in this trial were more likely to describe their parenting as positive or consistent, given the likely involvement of Social Services and Youth Justice. In contrast, adolescents may have reported their parents' behaviours more negatively due to differing perspectives or as a response to external pressures. While parent-reported measures may be more susceptible to social desirability bias, adolescent reports could also be influenced by negative perceptions of authority figures

or rebellious tendencies. Regardless of the underlying mechanisms, the findings suggest that parent and adolescent reports of positive parenting and monitoring/supervision should not be treated interchangeably and may influence behavioural outcomes in different ways.

Beyond outcome-related findings, a notable observation was that changes in positive parenting and monitoring/supervision, when they occurred, were typically observed at the six-month data collection point and were generally maintained thereafter. Given that the intervention period in this RCT lasted three to five months, this suggests that both MST and MAU may be associated with sustained changes in parenting behaviours for up to a year after treatment ends. This is reassuring for future interventions aimed at modifying parenting. However, the role of observational effects should also be considered: regular assessments as part of trial participation may influence parenting behaviours regardless of intervention allocation.

Strengths and Limitations

This study has several strengths. Although the sample was disproportionately male (63.4%), this reflects the broader epidemiology of conduct disorder, as males are diagnosed at nearly twice the rate of females in Europe (Maughan et al., 2004). Much of the research on conduct disorder has historically focused exclusively on male samples (Freitag et al., 2018), making the gender balance in this study a relative strength. The sample is representative of families referred for behavioural interventions in the UK (Fonagy et al., 2018) and is broadly comparable to the general population in terms of ethnicity (ONS, 2011). Additionally, statistical adjustments were made to control for potential confounders, including gender, ethnicity, treatment group, and baseline SDQ scores, strengthening the validity of the findings.

However, several limitations should be acknowledged. Attrition was considerable (approximately 35%) in APQ data between baseline and 18 months. While baseline characteristics did not differ significantly between completers and non-completers, with age being the only significant difference, attrition remains a potential source of bias. Additionally, only parent-reported adolescent outcomes were assessed. Given the discrepancies between parent and adolescent reports of positive parenting and monitoring/supervision, it is possible that adolescents may have perceived their own conduct disorder and pro-social behaviour differently from their parents' evaluations.

Only one parent report per family was included, which may oversimplify the complexity of parenting dynamics. As with much parenting research, the findings are likely to be viewed through a "matriarchal lens" (Adamsons & Buehler, 2007), meaning they primarily reflect the perspective of the primary caregiver, who is often the mother. This approach may overlook the interplay between multiple caregivers, including fathers, step-parents, or other guardians, and their influence on adolescent behavioural outcomes. Further information regarding the caregiver would also strengthen understanding about this complex dynamic.

It should be noted that the sample in this study comprised adolescents exhibiting moderate to severe antisocial behaviour, which may have influenced the study outcomes. Elevated levels of aggression and rule-breaking are likely to place strain on parent-child relationships, potentially affecting the reliability of self-reported data. Moreover, the likely prevalence of family instability, legal involvement, and co-occurring conditions (e.g., substance use, trauma exposure) in such populations may act as confounding factors, complicating the interpretation of parenting effects. These contextual challenges should be

taken into account when considering the generalisability of findings to populations with less severe forms of antisocial behaviour.

Conclusions & Recommendations

In conclusion, distinct trajectories of parenting can be identified in parents of adolescents with behavioural problems, challenging the assumption that parenting remains static over time. However, substantial discrepancies exist between parent and adolescent reports. Parents tend to report greater stability in their positive parenting over time, whereas adolescents perceive more fluctuation, particularly in cases where they report initial deficits in positive parenting followed by increases post-intervention. These findings underscore the importance of including both parent and adolescent reports to capture a more balanced perspective in future research.

Better behavioural outcomes were observed in adolescents whose parents reported higher levels of positive parenting. This suggests that interventions focusing on strengthening positive parenting may be more effective than those primarily aimed at increasing monitoring and supervision. Additionally, dramatic increases in monitoring/supervision were associated with poorer outcomes, raising concerns about the potential negative effects of excessive parental control.

Future research and interventions should explore how parenting behaviours evolve over time through multi-timepoint data collection. Further investigation is also needed into factors that mediate the relationship between parenting and conduct problems. For instance, emerging evidence suggests that callous-unemotional traits may reduce the effectiveness of parenting interventions for children exhibiting these traits (Facci et al., 2024; Waller et al., 2015).

The nature of monitoring and supervision also warrants further examination. Questions remain about how much supervision is optimal, how it is communicated, and how it is negotiated within the parent-child relationship. Striking the right balance between autonomy and age-appropriate supervision is a longstanding challenge in parenting, and interventions should carefully consider how monitoring and supervision are framed and implemented. Both under- and over-surveillance appear to be associated with poorer behavioural outcomes, highlighting the importance of flexible, developmentally appropriate supervision strategies.

Finally, modern parenting practices, particularly digital monitoring, may require updated assessment tools. Traditional measures such as the APQ do not capture the ways in which contemporary parents monitor their children, including digital surveillance, content restrictions, and GPS tracking. Future research should incorporate ecologically valid measures of parental supervision that reflect the realities of 21st-century parenting.

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Chapter 5: Discussion and Critical Evaluation

Summary of Findings

Parenting is a complex phenomenon, not only for individual families, but also for researchers attempting to map its stability and clinicians and policy makers who design interventions aimed at improving outcomes for children and young people. This thesis describes two pieces of work which aim to contribute to our understanding of parenting behaviours during the adolescent period.

Chapter two considers the evidence for stability and change in parenting style and dimensions at the group level, over the course of "normal" adolescence. That is to say, in the absence of a parenting intervention, in community samples which have not been recruited based on mental health conditions or behavioural issues. A systematic review and meta-analysis report findings from thirty studies, comprising over 35,000 participants in 12 countries. Parenting style and dimensions were found to be relatively stable with very small effect sizes for the dimensions (g=-0.12 for demandingness/control and g=-0.09 for responsiveness/warmth). This supports the common theoretical assumption that a single measurement timepoint of parenting dimensions can be used to consider outcomes over time, at least in community samples at the group level.

Parenting interventions are a ubiquitous tool used to address health and behavioural problems in children and young people. They assume that parenting behaviours can be modified over time. Optimal parenting is expected to produce better outcomes, for example in physical health, mental health, well-being, academic performance or offending. Chapter four considers how parenting behaviour change can be understood in a sample of adolescents with behavioural problems and their parents taking part in interventions targeting antisocial behaviour. In a sample of 683 adolescents with moderate to severe antisocial behaviour,

Growth Curve Modelling identified sub-classes of positive parenting and monitoring/supervision reported by parents and adolescents over 18 months. Subclass trajectories looked different when reported by parent and adolescent. When parents reported positive parenting, it was consistent over 18 months. A high positive parenting subclass (79% of parents) and a moderate positive parenting subclass (21% of parents) were identified. When reported by adolescents, a class comprising 81% of adolescents reported high and consistent positive parenting, but a second class (19%) reported initially low levels of positive parenting which improved after intervention. When parents reported monitoring/supervision, three subclasses were identified: poor with a small increase (21%), moderate and consistent (40%) and poor with a large increase (19%). When reported by adolescents, two classes were identified: moderate with decreased monitoring/supervision (33%) and poor with increased monitoring/supervision (67%).

Conduct disorder and pro-social behaviour scores on the Strengths and Difficulties Questionnaire (Goodman, 2001) were compared between classes at 18 months, controlling for baseline scores and demographics. Positive parenting class membership was related to outcomes when reported by parents, but not when reported by adolescents. The class with high positive parenting had significantly lower scores for conduct disorder and higher scores for pro-social behaviour when compared to the moderate class. Supervision/monitoring class membership was related to outcomes when reported by both parents and adolescents. When reported by parents, conduct disorder scores were significantly higher and pro-social behaviour significantly lower for the class of parents with a large increase in monitoring/supervision compared to classes where it was initially poor with a small increase and where it was moderate and consistent. When reported by adolescents, monitoring/supervision class had no effect on pro-social behaviour scores at 18-months, but

conduct disorder scores were higher for the class with poor but increasing monitoring/supervision.

In summary, it seems that in the absence of intervention, parenting behaviours as measured by the dimensions of demandingness and responsiveness may be quite stable. However, in samples receiving targeted intervention, nuanced variability and change in parenting can be identified and these differ depending on who reports parenting. Parents consider their positive parenting to be more stable than their children do, and outcomes are better with higher positive parenting. Poorer outcomes are observed when monitoring and supervision reported by parents and adolescents is initially poor and then increases.

Theoretical and Clinical Implications

Chapter two represents the first attempt to synthesise the literature on change and stability in parenting styles in the adolescent period. Although there is a considerable body of research on this in younger children (Dallaire & Weinraub, 2005; Holden & Miller, 1999; Schroeder & Mowen, 2014), little previous effort had been made to draw the evidence together. While it is far from a perfect attempt- there is considerable heterogeneity in the studies included- it is nevertheless a beginning. Researchers have pointed out the risks of assuming stability by only measuring parenting style on a single occasion (Holden & Miller, 1999; Schroeder & Mowen, 2014). This systematic review goes some way to providing support for the safety of this assumption in community samples: without intervention it seems that measures of responsiveness and demandingness demonstrate absolute and relative stability during adolescence. Subgroup meta-analysis also provide support for the hypothesis that parents and adolescent reports of parenting dimensions do not significantly differ in community samples, which has been another ongoing debate in the field.

Chapter four demonstrates that with intervention, in a sample of adolescents with behavioural problems, it is possible to identify sub-classes of parenting which differ from one another over time, and that these sub-classes can be shown to have different effects on conduct disorder and pro-social behaviour scores after 18 months. In this sample, adolescents did not report parenting in the same way as their parents. This highlights the importance of considering who is reporting parenting- it may be that in a community population, there is little divergence in reports between parent and child, but that in populations with higher levels of pathology e.g. conduct disorder, it is less safe to assume parent and child perceive parenting in the same way.

The way in which monitoring and supervision is carried out by parents is rapidly changing in modern society. Knowing where your child was and who they are with physically may have been considered sufficient monitoring to reduce risk to their safety in the past, but the rapid advancement of technology does and will continue to require novel ways for parents to supervise their children. Monitoring of devices has become more pertinent than monitoring of whereabouts, and this will require adaptations of the measures used to assess parenting. Particularly in measures of parenting practices, greater attention might be paid to aspects of monitoring related to social media use, online gaming, location tracking etc.

Both chapters provide evidence that might be usefully considered in the development of clinical interventions for adolescents. The systematic review found that increasing parental warmth and reducing control were associated with increasing self-concept and emotion regulation and reducing externalizing problem behaviour in adolescents. Shifts towards uninvolved or authoritarian parenting correlated with increasing secrecy, substance used and offending. Findings from chapter four suggest that sudden increases in monitoring and supervision in adolescents with behavioural problems result in higher levels of conduct disorder and lower levels of pro-social behaviour. This was unexpected due to previous

findings regarding the strong effect of poor monitoring and supervision on increase disruptive behaviours and delinquency (Hoeve et al., 2009; Loeber & Stouthamer-Loeber, 1986). However, there is evidence that high levels of controlling parenting and an authoritarian parenting style are associated with poorer outcomes (Barber et al., 1994; Baumrind, 1996, 2013; Calders et al., 2020). Both researchers and those designing and delivering interventions aimed at reducing problem behaviours in these populations should note the evidence for better outcomes for young people whose parents demonstrate higher levels of warmth and also how monitoring and supervision of adolescents can be optimally applied. Control may play a particularly important role in parenting children and young people with persistent patterns of non-compliant or defiant behaviour, such as Oppositional Defiant Disorder or Conduct-dissocial disorder. For these families, increased control may increase the likelihood of negative outcomes. Parent training programs and multi-modal interventions should include psychoeducation on the risks of high levels of control and forced compliance, and dedicated space to consider the appropriate and acceptable levels of supervision for the individual adolescent.

Strengths and Limitations

This thesis is the first empirical work as far as I am aware that has drawn together evidence of change in parenting during adolescence in "normal" populations, using data spanning more than 20 years and across a range of Progress + defined characteristics (O'Neill et al., 2014). It demonstrates that parenting phenomenon that occur at the group level may show different trajectories when considered intra-individually and within specific populations of adolescents, such as those with behavioural problems. It provides specific recommendations regarding outcomes and the design of interventions.

Some degree of caution is required when considering these findings. The concepts of responsiveness and demandingness are based on factor analyses of primarily European American, middle class samples first identified over 80 years ago (Power, 2013). While they remain the only parenting styles with a strong empirical basis, we live in a society which is ever evolving. Most early parenting research was conducted with mothers, and the roles fathers today play in their children's lives would be unrecognisable to those of the 1930s and 40s. It is also notable how little reference is made in the parenting literature to other carers. There is an assumption that the person doing the "parenting" is the parent and rare to see parent/carer in measures as clinicians might tend to in their practice. While test of measurement invariance in the APQ have found that the factor structure holds across parent gender, race and ethnicity (Shaffer et al., 2022), researchers have questioned whether the classification of parenting styles into authoritative and authoritarian applies across cultural and racial groups (McLoyd et al., 2000). The "universality" of parenting styles and dimensions across time, culture and for different family structures will be an ongoing question for researchers.

It should be noted that while both chapters address the issue of change in parenting behaviours, they adopt different approaches to measurement. Chapter two addresses parenting style and dimension, whereas chapter four focuses on change as measured by the APQ, which is a measure of parenting practice. As discussed in chapters one and three, these are related but distinct concepts. While warmth and control as measured by the APQ are descriptively similar to responsiveness and demandingness, they are not interchangeable.

Future Research

While this work addresses change in parenting style and dimensions in adolescence without intervention, there is still a gap in the literature regarding how stable they are with

intervention. Future work might address change in responsiveness and demandingness over the course of parenting interventions, and how any change relates to outcome.

As discussed in chapter four, the outcomes assessed are self-reported by parents and may be susceptible to bias. Future work may consider how changes in positive parenting and monitoring/supervision are related to other outcomes of interest for young people with behavioural problems, such as offending rates. These may provide a more independent assessment of the effects of parental behaviour than self-report.

How to optimise monitoring and supervision in adolescents would also be an area of research which could very usefully inform parenting interventions. Practitioners, parents and carers could be forgiven for assuming that increasing supervision and monitoring in response to behavioural problems would be beneficial, but we have observed in chapter four that this is not always the case. Further research into why and at what the point supervision becomes detrimental to outcomes in different populations of adolescents (e.g. with particular mental health disorders, in neurodiverse populations) is warranted. For example, is it related to levels of family conflict?

Measures of parenting practices also need modernising, to account for parenting in the digital age. It is vital for the validity of new measures that young people are involved in this process, as they are best placed to report the impact of social changes on their environment and experience of being parented. As "experts by experience" adolescents seem to have been notably absent from previous efforts to produce such measures.

Conclusions

This thesis explores the complexity of parenting during the period of adolescence. The findings suggest parenting dimensions remain relatively stable over time, supporting the assumption that a single measure can be used to predict outcomes across adolescence in

community samples. With targeted intervention for adolescents displaying behavioural problems, positive parenting and monitoring and supervision can change over time and impact outcomes like conduct disorder and pro-social behaviours. Notably, discrepancies between parent and adolescent reports were observed, highlighting the importance of considering who reports on parenting in these populations.

This work contributes to the understanding of how parenting changes in both typical and high-risk adolescent populations and provides insights for developing more effective interventions. Excessive or sudden changes in monitoring might have unintended negative consequences, emphasizing the need for tailored approaches in interventions. Additionally, it underscores the need for updated measures of parenting to reflect the digital age, where online supervision is as important as physical monitoring. These insights could help refine clinical practices and policy interventions aimed at improving adolescent outcomes.

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Appendix A: UEA FMH Ethics Approval

Ethics ETH2324-0328 : Dr Tara Mcfarquhar

Date Created	09 Oct 2023
Date Submitted	09 Oct 2023
Date forwarded to committee	11 Oct 2023
Researcher	Dr Tara Mcfarquhar
Category	PGR
Supervisor	Dr Sarah Reeve
Faculty	Faculty of Medicine & Health Sciences
Current status	Approved

Ethics application

Applicant and research team

Principal Applicant

Name of Principal Applicant
Dr Tara Mcfarquhar

UEA account
prq22mju@uea.ac.uk

School/Department
Norwich Medical School

Category
PGR

Primary Supervisor

Name of Primary Supervisor
Dr Sarah Reeve

Primary Supervisor's school/department
Norwich Medical School

External Co-applicant(s)

Name of external Co-applicant where applicable.
Dr Elizabeth Simes

Name of external Co-applicant's organisation/institution where applicable.
UCL

Name of external Co-applicant where applicable.

Prof Peter Fonagy

Name of external Co-applicant's organisation/institution where applicable.
UCL

Name of external Co-applicant where applicable.
Dr Rob Saunders

Name of external Co-applicant's organisation/institution where applicable.
UCL

Project details

Project title
How are Parent Factors Related to Behavioural Change in Adolescents with Behavioural Problems?

Project start date
01 Nov 2023

Project end date
30 Sept 2024

Describe the scope and aims of the project in language understandable by a non-technical audience. Include any other relevant background which will allow the reviewers to contextualise the research.
It is assumed that there is a link between parenting and child behaviour, yet very little is known about how parenting style might change over time. Also, if parenting style is related to outcomes for young people with behavioural problems. Behavioural problems are very common in young people and are linked with mental health problems and longer terms costs for the young person and society as a whole. Improving what we know about the connection between parenting and behavioural problems in young people could help to target and focus work with parents, which might be helpful for families and the people who work with them. This study will firstly check what research to date has reported about parenting and behavioural problems in the teen-age years. Next, data already collected from young people with anti-social behaviour will be used to find out how parenting style might change over time, and if these different parenting approaches are linked with better or worse outcomes for those young people 18-60 months later. Outcomes will be measured as offending behaviour, out of home placement and parent and young person reports of their behaviour problems. Parents with experience of caring for a child with mental health difficulties and/or who have experienced mental health issues themselves will be involved in this study. The results may inform future work of social services, charities, Youth Offending Teams, schools and Child and Adolescent Mental Health Services (CAMHS)

Provide a brief explanation of the research design (e.g. interview, experimental, observational, survey), questions, methodology, and data gathered/analysis. If relevant, include what the participants will be expected to do/experience.

This study will involve a secondary analysis of longitudinal data gathered during the Systemic Therapy for At Risk Teens (START) trial, a Randomized Controlled Trial (RCT) that compared MultiSystemic Therapy (MST) with Management as Usual (MAU). No new data will be collected. Self-report questionnaires included in the START dataset will be evaluated to identify latent parenting style which will then be considered in terms of outcomes for young people.

To establish distinct parenting style dimensions, factor analysis will be applied on selected items from multiple measures that assess components of parenting. The second phase involves applying Growth Mixture Modeling (GMM) to the newly created parenting dimensions using Mplus. GMM is a longitudinal clustering analysis technique typically used in patient health outcomes research to examine variability over time. In this context, GMM will help identify subgroups based on how parenting styles change over time. Regression models will then be developed to examine the relationship between the parenting trajectories identified and behavioural outcomes.

Detail how any adverse events arising in the course of the project will be reported in a timely manner.

The Principal Applicant will be responsible for reporting any adverse events via Ethics Monitor

Will you also be applying for Health Research Authority approval (HRA)?

No

Indicate if you are applying for approval for an experiment to be conducted in the School of Economics' Laboratory for Economic and Decision Research (LEDR).

No

Is the project?:

none of the options listed

Does the project have external funding administered through the University's Research and Innovation Services (RIN)?

No

Will the research take place outside of the UK?

No

Will any part of the project be carried out under the auspices of an external organisation, or involve collaboration between institutions?

Yes

Do you require or have you already gained approval from an ethics review body external to UEA?

Yes, approval obtained from a UK Higher Education Institution

Does this new project relate to a project which already has ethics approval from UEA?
No

Ethics approval external to UEA

Provide details of the external body who is considering or who has provided ethics approval, including their name, address and details of the responsible person there.
The START trial was granted approval by the South East Research Ethics Committee for data collection to 18 months (09/H1102/55) and extended data collection to 60 months.

Dr L. Alan Ruben Chair

South East Research Ethics Committee

South East Coast Strategic Health Authority

Preston Hall

Aylesford

Kent

ME20 7NJ

Provide details of UEA's contribution to the study if this is not explicitly clear in the ethics application submitted to the other UK HEI.
This is secondary data analysis and no further data will be collected. The data has been completely and robustly pseudonymized in accordance with General Data Protection Regulation GDPR requirements and

will be stored securely at UCL (not UEA) in line with the UCL Research Data Management Policy. While the key to link the dataset to participants in the trial does exist at UCL, UEA researchers will not have access to this for this project and there will be no need to identify any individuals who took part. UCL will remain the data custodian. The applicant will have an honorary contract with UCL for the purposes of the study. UEA will provide funding for MPlus software for the analysis and research supervision from Dr Sarah Reeve.

If approval has already been obtained, state the date approval was obtained.
20 May 2009

Upload documents related to this ethics approval.

Attached files

09-H1102-55 Favourable Opinion 20-5-09.pdf

Assent form-YP V1.4 05.11.2013 (Final) NIHR logo.doc

Consent_Parent- V1.4 05.11.2013 (Final) NIHR logo.doc

Consent_YP- V1.4 05.11.2013 (Final) NIHR logo.doc

Appendix B: START trial NHS REC Approval

South East Research Ethics Committee
South East Coast Strategic Health Authority
Preston Hall
Aylesford
Kent
ME20 7NJ

Telephone: 01622 713097
Facsimile: 01622 885966

20 May 2009

Professor Peter Fonagy
Freud Memorial Professor of Psychoanalysis and Head of the Research Department of Clinical, Educational and Health Psychology, University College London
University College London
Psychoanalysis Unit
1-19 Torrington Place
UCL
WC1E 7HB

Dear Professor Fonagy

Full title of study: **START (Systemic Therapy for At Risk Teens): A National Randomized Controlled Trial to Evaluate Multisystemic Therapy in the UK Context**
REC reference number: **09/H1102/55**

The Research Ethics Committee reviewed the above application at the meeting held on 13 May 2009.

After the Committee's initial deliberations on your application, yourself and Dr Butler kindly joined the meeting to clarify some issues. Thank you for taking the time to do so. The following issues were clarified during the discussion:

Q **Can you deliver this? It is a very intensive process with many contacts with members of families. Do you have enough resources?**

A There is clinical provision in place within the ten established sites. A government grant of £10million has been awarded to this project. All staff have already been recruited for the ten sites. Seven sites have staff employed by NHS agencies and three have staff employed by local authorities. Collaboration was demonstrated in order to gain the funding. All systems necessary have already been developed. The study will be monitored very carefully to ensure intervention is properly delivered.

Q **Has risk assessment taken into account that you may not be able to undertake the project exactly as per the proposal?**

A One of the outcome variables is to expect site-specific differences and this should be the guiding principle of any government national roll-out.

Q **In the power calculation you have allowed for differences in sites, but vulnerable young people come from different sources. There will be a multifaceted group receiving the intervention. Has this been taken into account?**

A The power calculation is based on the success rates of the USA and Norway studies primarily recruited from offender centres. There are no figures to inform the power calculation, although most young people will probably be the same regardless of the service they come from. They will all be diligent rejecters from an early age and we have factored in that they may respond less well. Randomisation has been agreed by the funders.

The Committee were very impressed with the thought that had gone into the study, and the helpful attendance of two of the most senior members of the team; and noted that it was very helpful to have received comments from the study reviewers.

Ethical opinion

The members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation, subject to the conditions specified below.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission at NHS sites ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
The Revised Conflict Tactics Scales (CTS2)		
Beliefs and Attitudes Scale		
The Development and Well-Being Assessment - Parent Interview		
The Development and Well-Being Assessment - Interview with 11-17 year olds		
Insurance Certificate		01 July 2008
Participant Consent Form: Young Person	1.1	07 April 2009
Participant Information Sheet: Parent or Carer	1.1	07 April 2009
Participant Information Sheet: Young People aged 15-17	1.1	07 April 2009
Participant Information Sheet: Young People aged 11-14	1.1	07 April 2009
Questionnaire: Strengths and Difficulties Questionnaire		
Questionnaire: The University of New Orleans Alabama Parenting Questionnaire (APQ)		
Questionnaire: Short Mood and Feelings Questionnaire		
Questionnaire: The General Health Questionnaire		
Questionnaire: Young Person's Questionnaire Booklet		
Peer Review		
Letter from Sponsor		04 April 2009

Covering Letter		08 April 2009
Protocol	1.0	30 March 2009
Investigator CV	Professor Peter Fonagy	
Application		07 April 2009
Connors' Teacher Rating Scale - Revised (S)		
ICU (Youth Version)		
ICU (Parent Version)		
LEE scale		
The McMaster Family Assesment Device		
WASI Record Form		
The Child Attachment Interview (CAI) Protocol		
Participant Consent Form: Parent/Carer	1.1	07 April 2009
Participant Consent Form: Optional Additional Qualitative Study - Parent/Carer	1.1	07 April 2009
Participant Information Sheet: Optional Additional Qualitative Study Information for Parents	1.1	07 April 2009
Development and Well-being Assessment (Teacher Version)		

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

Professor Katona and Dr Bhiman both declared a non-specific, non-personal interest in the study. Members agreed that Professor Katona and Dr Bhiman could remain in the meeting and contribute to the review of the study.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nres.npsa.nhs.uk.

09/H1102/55	Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely

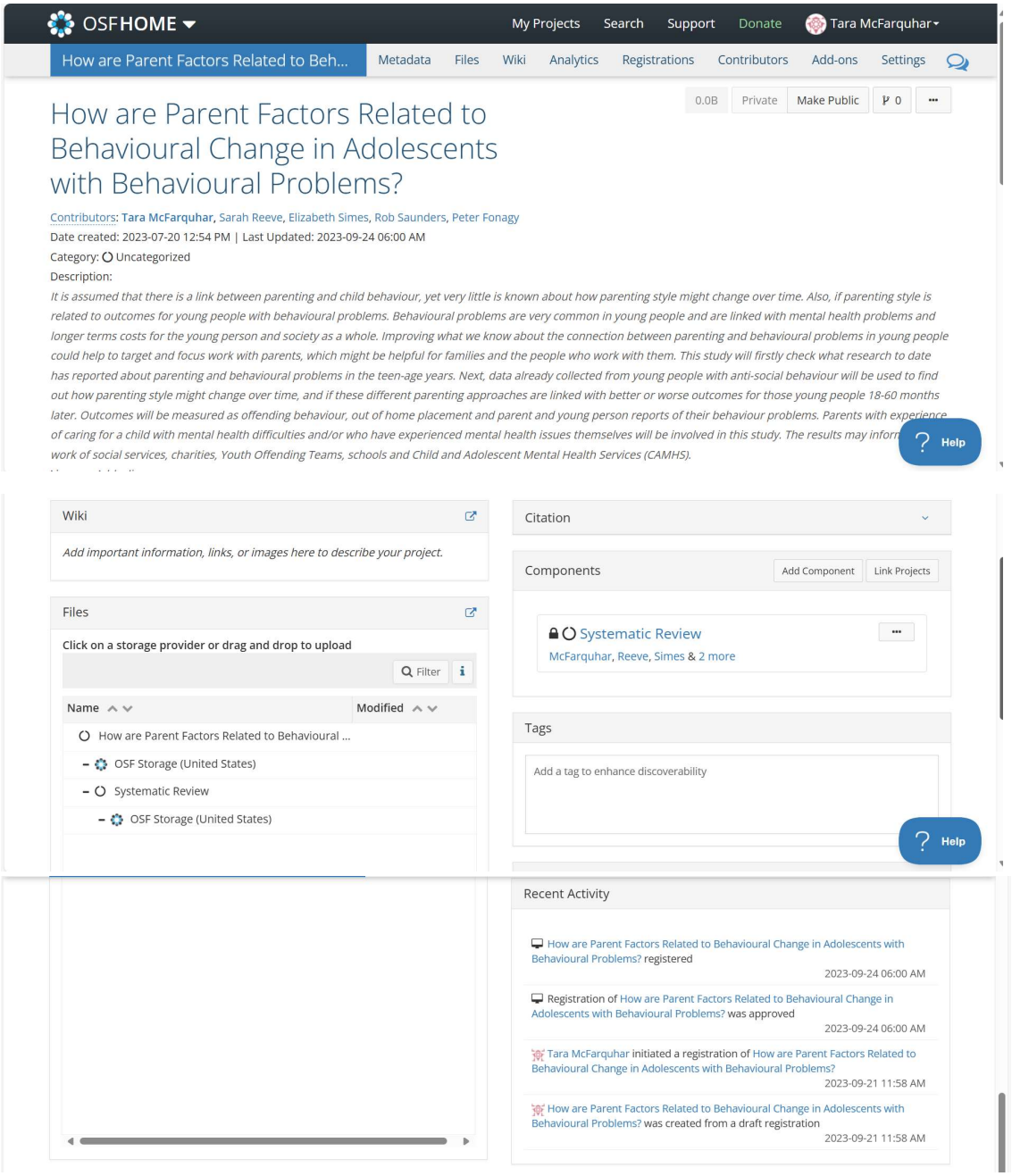
Dr L. Alan Ruben
Chair

Email: nicki.watts@nhs.net

Enclosures: *List of names and professions of members who were present at the meeting and those who submitted written comments*
"After ethical review – guidance for researchers"

Copy to: *Dr O Awwenagha*

Appendix C: OSF Registration



Appendix D: Author Guidelines for Journal of Adolescence

The *Journal of Adolescence* is an international, broad based, cross-disciplinary journal that addresses issues of professional and academic importance concerning development between puberty and the attainment of adult status within society. Our focus is specifically on adolescent *development:* change over time or negotiating age specific issues and life transitions. The aim of the journal is to encourage research and foster good practice through publishing empirical studies, integrative reviews and theoretical and methodological advances. The *Journal of Adolescence* is essential reading for adolescent researchers, social workers, psychiatrists, psychologists, and youth workers in practice, and for university and college faculty in the fields of psychology, sociology, education, criminal justice, and social work.
Research Areas Encompassed:

- Adolescent development with particular emphasis on social, cognitive, and emotional functioning
- Resilience, positive development, and effective coping within the context of adolescent development
- Disturbances and disorders of adolescence, approached from a developmental perspective
- Public health approaches and interventions designed to reduce risk or support positive development

JoA actively seeks papers that are strongly grounded in theory and have a clear developmental focus. We are particularly interested in research focusing on less studied populations or that examine contextual variation in developmental processes. In addition to empirical research articles, JoA also publishes systematic Review Articles and papers that focus on areas of methodological import.
The Journal publishes quantitative, qualitative, and mixed method research and welcomes systematic review articles and papers providing reviews or practical guidance on important or novel topics relevant to developmental methodology. We do not publish papers whose primary purpose is the validation of established measures in new cultural contexts. If required, additional words may be permitted to report such validations within a standard.

Submission and Peer Review Process

Free format submission

Journal of Adolescence follows APA form for final publications (see format exceptions below). However, we will accept Free Format submission for a simplified and streamlined submission process.

Before you submit, you will need:

- Your manuscript: this should be an editable file including text, figures, and tables, or separate files—whichever you prefer. All required sections should be contained in your manuscript, including title page, abstract, introduction, methods, results, conclusions, and references. Figures and tables should have legends. Figures should

be uploaded in the highest resolution possible. References may be submitted in any style or format, but must be consistent throughout the manuscript. Supporting information should be submitted in separate files. If the manuscript, figures or tables are difficult for you to read, they will also be difficult for the editors and reviewers, and the editorial office will send it back to you for revision. Your manuscript may also be sent back to you for revision if the quality of English language is poor.

- An ORCID ID, freely available at https://orcid.org. *(Why is this important? Your article, if accepted and published, will be attached to your ORCID profile. Institutions and funders are increasingly requiring authors to have ORCID IDs.)*
- The title page of the manuscript, including:
    - Your co-author details, including affiliation and email address. *(Why is this important? We need to keep all co-authors informed of the outcome of the peer review process.)*
    - Word count, excluding abstract, references, tables, figures or appendices.
    - Statements relating to our ethics and integrity policies. *(Why are these important? We need to uphold rigorous ethical standards for the research we consider for publication)* This includes:
        - data availability statement*
        - funding statement*
        - conflict of interest disclosure*
        - ethics approval statement*
        - patient consent statement
        - permission to reproduce material from other sources
        - clinical trial registration
    - * Required

Important: the journal operates a double-blind peer review policy. Please anonymize your manuscript and supply a separate title page file. Manuscripts that have not been anonymized will be returned. Please ensure that all comments have been removed from your manuscript prior to submission.

Once the submission materials have been prepared in accordance with the Author Guidelines, manuscripts should be submitted online at https://wiley.atyponrex.com/journal/JAD

NOTE: In order to process submissions efficiently, authors are advised to submit with their institutional email addresses where applicable.

For help with submissions, please contact: joa.office@wiley.com.

For technical help with the submission system, please review our FAQs or contact submissionhelp@wiley.com.

This journal does not charge submission fees.

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Wiley Editing Services offers expert help with English Language Editing, as well as translation, manuscript formatting, figure illustration, figure formatting, and graphical abstract design – so you can submit your manuscript with confidence.

Also, check out our resources for Preparing Your Article for general guidance about writing and preparing your manuscript.

Open Access

This journal is a subscription journal that offers an open access option. You'll have the option to make your article open access after acceptance, which will be subject to an APC, unless a waiver applies. For more information on this journal's APCs, please see the Open Access page.

Preprint policy:

Please find the Wiley preprint policy here.

Journal of Adolescence will consider articles previously available as preprints for review. You may also post the submitted version of a manuscript to a preprint server at any time. We request that you update any pre-publication versions with a link to the final published article.

This Journal operates a double-blind peer review process. Authors are responsible for anonymizing their manuscript in order to remain anonymous to the reviewers throughout the peer review process (see "Main Text File" below for more details). Since the journal also allows posting of preprints, please note that if authors share their manuscript in preprint form this may compromise their anonymity during peer review.

Registered Reports

See the Registered Reports Author Guidelines for full details.

Data Sharing and Data Availability

This journal expects data sharing. Review Wiley's Data Sharing policy where you will be able to see and select the data availability statement that is right for your submission.

Data Citation

Please review Wiley's Data Citation policy.

Data Protection

By submitting a manuscript to or reviewing for this publication, your name, email address, and affiliation, and other contact details the publication might require, will be used for the regular operations of the publication. Please review Wiley's Data Protection Policy to learn more.

Funding

You should list all funding sources in the Acknowledgments section. You are responsible for the accuracy of their funder designation. If in doubt, please check the Open Funder Registry for the correct nomenclature.

Authorship

All listed authors should have contributed to the manuscript substantially and have agreed to the final submitted version. Review editorial standards and scroll down for a description of authorship criteria.

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This journal requires ORCID. Please refer to Wiley's resources on ORCID.

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Title Page

The title page should contain**:**

i. A brief informative title containing the major key words. The title should not contain abbreviations (see Wiley's best practice SEO tips);
    a. Country of data collection or cultural identity of participants should not be included in the title unless it is the focus of the manuscript (e.g., the focus of the study is an explicit cultural comparison or ethnicity and cultural context is central to the study's purpose);
ii. A short running title of less than 40 characters;
iii. The full names of the authors;
iv. The author's institutional affiliations where the work was conducted, with a footnote for the author's present address if different from where the work was conducted;
v. Complete postal and email address for the corresponding author;
vi. Acknowledgments.
vii. Word count, excluding abstract, references, tables, figures or appendices.

(Important: the journal operates a double-blind peer review policy. Please anonymize your manuscript and prepare a separate title page containing author details.)

Main Text File

Journal of Adolescence operates using a double-blind peer review process. Please ensure that all identifying information such as author names and affiliations, acknowledgements or explicit mentions of author institution in the text are on a separate page.

i. Authors citing their own previously published work or relying on shared data sources should be careful to blind any citations that may compromise anonymity during the review procedure.

ii. Please check that all comments and notes have been removed from the manuscript prior to submission.

Manuscripts can be uploaded either as a single document (containing the main text, tables and figures), or with figures and tables provided as separate files for initial review. We encourage you to include your tables and figures within the main document to make it easier for editors and reviewers to read your manuscript. Should your manuscript reach revision stage, figures and tables must be provided as separate files. The main manuscript file should be submitted in Microsoft Word format.

The main text file should be in Word and include:

- Title page (see requirements above);
- Abstracts
    - Abstracts should have four headers, each comprising a short separate paragraph: Introduction, Methods, Results & Conclusions.
    - Abstracts should be 200-250 words long, concise and factual.
    - Abstracts must be able to stand alone, and are often presented separately from the article
    - References should be avoided, but if essential, they must be cited in full, without reference to the reference list.
    - All abstracts must include basic information about the sample, including country of data collection, year of data collection, sample size, and relevant demographics. Numerical age and gender of participants are required.
    - Method of data collection should be indicated (e.g., qualitative analysis of interview material, surveys administered to parents and adolescents) and whether the study is cross-sectional or longitudinal
- Maximum of six keywords, listed immediately after the abstract. Avoid general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Only abbreviations firmly established in the field may be eligible. Keywords will be used for indexing purposes.
- Main body: formatted as introduction, materials & methods, results, discussion, conclusion. Please consult the APA Style Manual for publication guidelines.
    - Introduction: The Introduction should provide a clear statement of the paper's goal and a strong grounding in the literature, including all key constructs. It is important that the introduction clearly frames the study in a developmental framework.
    - Material and Methods: Methods must provide a clear description of recruitment, sampling methods, and final sample, including the year(s) and country of data collection. All measures must be fully described and cited appropriately, including appropriate descriptive statistics. Methods for handling missing data (at the measure and analysis level) should be described. A statement of compliance with ethical guidelines and review must be included.
    - Results: Results should reflect the problem statement in the Introduction, use the same names for constructs used in the Methods section, accurately describe the analytic techniques used, and refer to clearly tabled results and/or figures. Please table descriptions of complex multivariable analyses rather than reporting them in the text. Per APA guidelines, effect sizes should be reported whenever possible.

    - Discussion and Conclusion: Discussion of the results should clearly reflect back on the literature cited in the introduction, draw a clear conclusion, and suggest future areas of research. Limitations of the current work should be clearly and succinctly described.
- References;
- Tables (each table complete with title and footnotes);
- Figure legends: Legends should be supplied as a complete list in the text. Figures should be uploaded as separate files (see below).

Biased and Offensive Language

The Journal of Adolescence is an international journal. Please use inclusive language throughout your work and avoid sexist, racist, and offensive language and descriptions. The APA Style Guide provides extensive guidance on current usage.

Reference Style

This journal uses American Psychological Association reference style. The journal offers Free Format submission (see above), but it is imperative that authors use a consistent style throughout. Reference style guidelines can be found here

Figures and Supporting Information

Figures, supporting information, and appendices may be submitted separately in the Free Format submission or may be supplied as separate files. You should review the basic figure requirements for manuscripts for peer review, as well as the more detailed post-acceptance figure requirements. View Wiley's FAQs on supporting information.

Appendix E: Prospero Registration for Systematic Review

UNIVERSITY of York
Centre for Reviews and Dissemination

Systematic review

*Fields that have an **asterisk (*)** next to them means that they **must be answered. Word limits** are provided for each section. You will be unable to submit the form if the word limits are exceeded for any section.Registrant means the person filling out the form*.

2. Original language title.

For reviews in languages other than English, give the title in the original language. This will be displayed with the English language title.

3. * Anticipated or actual start date.

Give the date the systematic review started or is expected to start.

07/03/2024

4. * Anticipated completion date.

Give the date by which the review is expected to be completed.

26/09/2025

5 [1 change]. * Stage of review at time of this submission.

This field uses answers to initial screening questions. It cannot be edited until after registration.

Tick the boxes to show which review tasks have been started and which have been completed.

Update this field each time any amendments are made to a published record.

The review has not yet started: No

Review stage	Started	Completed
Preliminary searches	Yes	Yes
Piloting of the study selection process	Yes	Yes
Formal screening of search results against eligibility criteria	Yes	Yes
Data extraction	Yes	Yes
Risk of bias (quality) assessment	Yes	Yes
Data analysis	Yes	Yes

Provide any other relevant information about the stage of the review here.

7. * Named contact email.

Give the electronic email address of the named contact.

9. Named contact phone number.

Give the telephone number for the named contact, including international dialling code.

11. * Review team members and their organisational affiliations.

Give the personal details and the organisational affiliations of each member of the review team. Affiliation refers to groups or organisations to which review team members belong. **NOTE: email and country now MUST be entered for each person, unless you are amending a published record. PLEASE USE AN INSTITUTIONAL EMAIL ADDRESS IF POSSIBLE.**

Dr Tara McFarquhar. UEA
Dr Sarah Reeve. UEA
Dr Rob Saunders. UCL
Dr Elizabeth Simes. UCL
Professor Peter Fonagy. UCL

13. * Conflicts of interest.

List actual or perceived conflicts of interest (financial or academic).
None

14. Collaborators.

Give the name and affiliation of any individuals or organisations who are working on the review but who are not listed as review team members. **NOTE: email and country must be completed for each person, unless you are amending a published record.**

16. * Searches.

State the sources that will be searched (e.g. Medline). Give the search dates, and any restrictions (e.g. language or publication date). Do NOT enter the full search strategy (it may be provided as a link or attachment below.)

The electronic databases PsycINFO, PubMed and EMBASE will be searched for all years available.

Searches will be restricted to publications available in English language and will be re-run prior to the final analysis.

18. * Condition or domain being studied.

Give a short description of the disease, condition or healthcare domain being studied in your systematic review.

Caregiver parenting styles during adolescence

20. * Intervention(s), exposure(s).

Give full and clear descriptions or definitions of the interventions or the exposures to be reviewed. The preferred format includes details of both inclusion and exclusion criteria.

The focus of this review is to examine change in measures of parenting style over time, during adolescence.

Parenting style has been defined as “the parents’ perceivable attitudes towards the child” (Darling & Steinberg, 1993, p. 489) and is typically classified along two axes: control (boundaries, supervision, rules) and warmth (support, responsiveness, consistency) (Baumrind, 1966).

22. * Types of study to be included.

Give details of the study designs (e.g. RCT) that are eligible for inclusion in the review. The preferred format includes both inclusion and exclusion criteria. If there are no restrictions on the types of study, this should be stated.

Longitudinal observational studies, RCTs and quasi-experimental studies will be included.

24 [2 changes]. * Main outcome(s).

Give the pre-specified main (most important) outcomes of the review, including details of how the outcome is defined and measured and when these measurement are made, if these are part of the review inclusion criteria.

Change in parenting style score from baseline to the last available follow up, which must exceed 3 months. In order to maximize reporting, a broad approach to measurement will be adopted: any study which reports a scored measure of parenting style will be included, provided it meets the other inclusion/exclusion criteria.

Mean, standardized mean difference, Hedge's g

26 [1 change]. * Data extraction (selection and coding).

Describe how studies will be selected for inclusion. State what data will be extracted or obtained. State how this will be done and recorded.

Study selection: literature search results will be exported into Rayyan and duplicates removed. References and abstracts will be screened by the primary author (TM) and a random sample of 10% will be screened by a second reviewer against the inclusion / exclusion criteria. Full reports will be retrieved for those that appear to meet the eligibility criteria or where this is unclear. Reasons for exclusion will be recorded and a PRISMA flow diagram will be created. Data extraction will be performed by TM and discussed where necessary with RS or SR. If required, study authors will be contacted to obtain raw data where not fully reported. Where possible the following information data will be extracted from each study: Participant information: Sample size, parent (mother, father, both), adolescent age, sociodemographic characteristics outlined in the PROGRESS+ framework (O'Neill et al., 2014).

Methods: study design, intervention description and duration (if applicable), source of parenting style report (parent, adolescent, other), data collection methods, setting and date of study.

Outcomes: parenting style measure, raw data for parenting style, data collection timepoints, correlates of parenting style.

Notes: source of funding and conflicts of interest.

28 [2 changes]. * Strategy for data synthesis.

Describe the methods you plan to use to synthesise data. This but should be and describe how the proposed approach will be applied to your data. If meta-analysis is planned, describe the models to be used, methods to explore statistical heterogeneity, and software package to be used. We expect that a meta-analysis will not be feasible to synthesize the data in this review, due to the small number and heterogenous nature of the studies. Therefore, a narrative synthesis will be employed. However, in the event that there is suitable data to conduct a meta-analysis (defined for this study as at least 6 studies reporting means, SDs and correlations for a parenting style or dimension), this will be carried out. Decisions about data synthesis following the extraction will be discussed with a second reviewer as required, and any discrepancies resolved through discussion with RS and SR.

2. Studies will be organised into relevant groups (e.g. based on the source of parenting style report, intervention/no intervention, gender of adolescent, way in which parenting style is measured)

4. Parenting style outcome data will be transformed to a common rubric if possible

30 [1 change]. * Type and method of review.

Select the type of review, review method and health area from the lists below.

Type of review

Cost effectiveness

No

Diagnostic

No

Epidemiologic

No

Individual patient data (IPD) meta-analysis

No

Intervention

No

Living systematic review

No

Meta-analysis

Yes

Methodology

No

Narrative synthesis

Yes

Network meta-analysis

No

Pre-clinical

No

Prevention

No

Prognostic

No

Prospective meta-analysis (PMA)

No

Review of reviews

No

Service delivery

No

Synthesis of qualitative studies

No

Systematic review

Yes

Other

No

Health area of the review

Alcohol/substance misuse/abuse

No

Blood and immune system

Cancer

No

Cardiovascular

No

Care of the elderly

No

Child health

Yes

Complementary therapies

No

COVID-19

No

Crime and justice

No

Dental

No

Digestive system

No

Ear, nose and throat

No

Education

No

Endocrine and metabolic disorders

No

Eye disorders

No

General interest

Yes

Genetics

No

Health inequalities/health equity

No

Infections and infestations

No

International development

Mental health and behavioural conditions

Yes

Musculoskeletal

No

Neurological

No

Nursing

No

Obstetrics and gynaecology

No

Oral health

No

Palliative care

No

Perioperative care

No

Physiotherapy

No

Pregnancy and childbirth

No

Public health (including social determinants of health)

Yes

Rehabilitation

No

Respiratory disorders

No

Service delivery

No

Skin disorders

No

Social care

No

Surgery

No

Tropical Medicine

Urological

No

Wounds, injuries and accidents

No

Violence and abuse

No

32. * Country.

Select the country in which the review is being carried out. For multi-national collaborations select all the countries involved.

34. Reference and/or URL for published protocol.

If the protocol for this review is published provide details (authors, title and journal details, preferably in Vancouver format)
Add web link to the published protocol.

Or, upload your published protocol here in pdf format. Note that the upload will be publicly accessible.

No I do not make this file publicly available until the review is complete
Please note that the information required in the PROSPERO registration form must be completed in full even if access to a protocol is given.

36. Keywords.

Give words or phrases that best describe the review. Separate keywords with a semicolon or new line. Keywords help PROSPERO users find your review (keywords do not appear in the public record but are included in searches). Be as specific and precise as possible. Avoid acronyms and abbreviations unless these are in wide use.

37. Details of any existing review of the same topic by the same authors.

If you are registering an update of an existing review give details of the earlier versions and include a full bibliographic reference, if available.

38. * Current review status.

Update review status when the review is completed and when it is published.New registrations must be ongoing so this field is not editable for initial submission.

Please provide anticipated publication date

Review_Ongoing

40. Details of final report/publication(s) or preprints if available.

Leave empty until publication details are available OR you have a link to a preprint (NOTE: this field is not editable for initial submission). List authors, title and journal details preferably in Vancouver format.

Give the link to the published review or preprint.

Appendix F: PRISMA Checklist for Systematic Review

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			page
Title	1	Identify the report as a systematic review.	14
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	14
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	15
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	16
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	18
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	18
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	18
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	19
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	19
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	19
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	19
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	20
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	19
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	19

Section and Topic	Item #	Checklist item	Location where item is reported
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	20
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	19
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	19
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	20
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	20
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	20
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	20
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	21, 24
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	21
Study characteristics	17	Cite each included study and present its characteristics.	25
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	38-41
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	37-41; Appendix I & J
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	37-41; Appendix I & K
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	39-41
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	38-40
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	40

Section and Topic	Item #	Checklist item	Location where item is reported
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	38-41
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	38-41
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	44
	23b	Discuss any limitations of the evidence included in the review.	46
	23c	Discuss any limitations of the review processes used.	46
	23d	Discuss implications of the results for practice, policy, and future research.	48
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	18
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Appendix E
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Appendix E
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	13
Competing interests	26	Declare any competing interests of review authors.	13
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	13

Appendix G: MMAT Analysis of Study Quality for Systematic Review

Authors (year)	Category of study design	Methodological Criteria				
		1	2	3	4	5
Georgiou & Charalampous (2024)	Quantitative descriptive	Yes	Yes	Yes	Can't tell	yes
Peng et al (2024)	Quantitative descriptive	Yes	Yes	Yes	Yes	Yes
Richardson et al (2023)	Quantitative descriptive	Yes	Can't tell	Yes- but limitations	Can't tell	yes
Spitz & Steinhausen (2023)		Yes	No- gender imbalance	Can't tell- reliability co-efficients reported as unsatisfactory	Yes. Reasonable but significant	yes
Teuber et al., (2022)	Quantitative descriptive	Yes	Yes, but bias towards academic track, limited up to mid adolescence	Yes	Cant tell	Yes
Meisel & Colder (2022)	Quantitative descriptive	Yes	Yes	Yes	Yes- differences not significant	yes
Trucco et al (2014)	Quantitative descriptive	Yes	Yes	Yes	No- Non responders at T2 endorsed lower positive parenting at T1, d=0.55	Yes
Gan et al (2021)	Quantitative descriptive	No-used non clinical sample to investigate clinical problem	Can't tell	Yes	Yes- no differences found in attrition analysis	Yes
Kaniušonytė & Laursen, (2021)	Quantitative descriptive	Yes	Can't tell- small homogenous community	No- authors express some doubts over what measures tap & miss	No- Missing data more likely on those reporting lower control & free school meals	yes
Lepe et al (Lepe et al., 2021)	Quantitative descriptive	Yes	Yes- separate article reporting representativeness	Can't tell- summed scale used so reliability unclear	No- those lost to f/up had worse parenting styles	yes

Leung (2021)	Quantitative descriptive	Yes	No- Hong Kong sample exposed to British & Chinese culture, higher proportion living in poverty	Can't tell- measure only validated in university student population	Yes- analysis indicates drop out was random	Yes
Pinheiro-Carozzo et al (2021)	Quantitative descriptive	Yes	Yes	Yes- validated in the population	Can't tell- high drop out rate. No significant differences in parenting style for drop out but no other demographics tested	Yes
Baudat et al (2020)	Quantitative descriptive	Yes	Can't tell	Yes	No- significant differences in attrition analysis- eg drop outs more controlling	Yes
Calders et al (2020)	Quantitative descriptive	Yes	No- batchelor degrees & active employment over represented	Yes	No- retention higher for higher incomes & education & intact families	Yes
Van Heel et al (2019)	Quantitative descriptive	Yes	No- batchelor degrees & active employment over represented	Yes	No- retention higher for higher incomes & education & intact families	Yes
Williams & Ciarrochi (2020)	Quantitative descriptive	No- catholic schools only	Yes- other than bias in religion	Yes	Yes- very low attrition	Yes
Williams et al (2012)	Quantitative descriptive	No- catholic schools only	Yes- other than bias in religion	Yes	Yes- very low attrition	Yes
Rogers et al (2019)	Quantitative descriptive	Yes	Yes	Can't tell- self regulation measure only short term	Yes- good retention	Yes
Moilanen et al (2015)	Quantitative descriptive	Yes	Yes	Can't tell- low consistencies in paternal	Yes- good retention	Yes

				scales & self regulation measure only short term		
Van Lissa et al (2019)	Quantitative descriptive	Yes	Cant tell- not reported	Yes	Can't tell, not reported	Yes
Lippold, Glatz et al (2018)	Quantitative descriptive	Yes	No- selected for 2 parent families, Caucasian, rural	Can't tell- construct validity assumed. Mean of parent & YP score	No- bias towards less delinquency in responders	Yes
Lippold et al (2018)	Quantitative descriptive	Yes	No- selected for 2 parent families, Caucasian, rural	Can't tell- construct validity assumed. Mean of parent & YP score	No- bias towards less delinquency in responders	Yes
Missoten et al (2018)	Quantitative descriptive	Yes	Cant tell- demographics not reported- mostly Caucasian middle class	Yes	Cant tell- significant missing data and no report of biases	Yes
Zhang et al (2017)	Quantitative descriptive	Yes	No- authors report their sample is more urban/educated compared to wider population	Yes	Yes-reported on	Yes
Schroeder & Mowen (2014)	Quantitative descriptive	Yes	Yes- national sample	No-single item measures	Yes- no systemic patterns in attrition	Yes
Rousseau (2013)	Quantitative descriptive	Yes	Yes	Yes	Cant' tell- no data collected	yes
Luyckz (2011)	Quantitative descriptive	Yes Yes Yes	Yes	Can't tell- use abbreviated version but don't say how abbreviated. Averaged across parents	Can't tell	Yes
Carrasco (2011)	Quantitative descriptive	Yes	Can't tell- not reported but 99% white and more girls than boys	Yes	Can't tell	Yes
Willoughby & Hamza (2011)	Quantitative descriptive	Yes Yes Yes	Yes	Yes	No- significant difference	yes

					between those who responded once vs more	
Schofield et al (2009)	Quantitative descriptive	Yes	No. excluded families of <4- larger families than general population survey	Can't tell- reference not included	Can't tell	Yes
den Exter Blokland et al (2007)	Quantitative descriptive	Yes	Can't tell	Yes	Can't tell	Yes
Shek (2007)	Quantitative descriptive	Yes	Can't tell	Yes	Can't tell	Yes
Wang et al (2007)	Quantitative non-randomized study	Can't tell- no comparison with target populations	Can't tell- measures adapted and reliability/validity not reported after	Yes- good response rate	Yes	Yes
Paulson & Sputa (1996)	Quantitative descriptive	Yes	Can't tell- no comment on demographics of target population	Yes	No. only 31 of 244 followed up at T2	Can't tell- Ns not reported, follow up rate is low
Johnson & Pandina (1991)	Quantitative descriptive	Yes	Can't tell- 6% whiter, income comparable but other demographic no comment	Yes	Yes-tested for	Yes

Appendix H: Author Guidelines Journal of Youth and Adolescence

Title page

The title page should include:

The name(s) of the author(s)

A concise and informative title

The affiliation(s) and address(es) of the author(s)

The e-mail address, telephone and fax numbers of the corresponding author

Abstract

Please provide an abstract of 120 words or less. The abstract should not contain any undefined abbreviations or unspecified references.

Keywords

Please provide 4 to 6 keywords which can be used for indexing purposes.

Manuscript Submission

Submission of a manuscript implies: that the work described has not been published before; that it is not under consideration for publication anywhere else; that its publication has been approved by all co-authors, if any, as well as by the responsible authorities – tacitly or explicitly – at the institute where the work has been carried out. The publisher will not be held legally responsible should there be any claims for compensation.

Permissions

Authors wishing to include figures, tables, or text passages that have already been published elsewhere are required to obtain permission from the copyright owner(s) for both the print and online format and to include evidence that such permission has been granted when submitting their papers. Any material received without such evidence will be assumed to originate from the authors.

Online Submission

Please follow the hyperlink “Submit manuscript” and upload all of your manuscript files following the instructions given on the screen.

Source Files

Please ensure you provide all relevant editable source files at every submission and revision. Failing to submit a complete set of editable source files will result in your article not being considered for review. For your manuscript text please always submit in common word processing formats such as .docx or LaTeX.

Text Formatting

Manuscripts should be submitted in Word.

Use a normal, plain font (e.g., 10-point Times Roman) for text.

Use italics for emphasis.

Use the automatic page numbering function to number the pages.

Do not use field functions.

Use tab stops or other commands for indents, not the space bar.

Use the table function, not spreadsheets, to make tables.

Use the equation editor or MathType for equations.

Save your file in docx format (Word 2007 or higher) or doc format (older Word versions).

Manuscripts with mathematical content can also be submitted in LaTeX. We recommend using Springer Nature's LaTeX template.

Headings

Please use no more than three levels of displayed headings.

Abbreviations

Abbreviations should be defined at first mention and used consistently thereafter.

Footnotes

Footnotes can be used to give additional information, which may include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables.

Footnotes to the text are numbered consecutively; those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article are not given reference symbols.

Always use footnotes instead of endnotes.

Acknowledgments

Acknowledgments of people, grants, funds, etc. should be placed in a separate section on the title page. The names of funding organizations should be written in full.

Empirical articles must have the following major sections

Introduction (although not labeled as such)

Hypotheses (remind readers of rationales and actually make testable predictions or explain why you cannot predict)

Method (include demographic information about participants, such as race, ethnicity, and sex; have a subheading for each key variable, followed by appropriate text describing the variable and its effectiveness)

Results

Discussion

References

Appendices (if appropriate)

Manuscript Length

Manuscripts should not exceed 25-30 pages (including text, references, tables and figures); the Editor considers exceptions if authors provide adequate justifications when they submit their manuscripts. It is expected that the review process will result in an additional 5 to 10 pages of text.

Terminology

Please use the standard mathematical notation for formulae, symbols etc.:Italic for single letters that denote mathematical constants, variables, and unknown quantities Roman/upright for numerals, operators, and punctuation, and commonly defined functions or abbreviations,

e.g., cos, det, e or exp, lim, log, max, min, sin, tan, d (for derivative) Bold for vectors, tensors, and matrices.

Nonsexist Language

Authors must use nonsexist language. Make correct use of the terms "gender" and "sex." The term "gender" refers to culture and should be used when referring to men and women as social groups. The term "sex" refers to biology and should be used to emphasize biological distinctions.

Tenses

Carefully use tenses. The past tense refers to a past study. Specific results are written in the past tense, given that the study already has been completed. Use the present tense to refer to results (i.e., "the results indicate. . .") when your narrative refers to hypotheses that are being discussed in the present.

Active Voice

Use an active voice. Consult The Elements of Style (W. Strunk, Jr. & E.B. White) and Style: Writing with Clarity and Grace (J. M.Williams).

References

Citation

Cite references in the text by name and year in parentheses.

Authors are encouraged to follow official APA version 7 guidelines on the number of authors included in reference list entries (i.e., include all authors up to 20; for larger groups, give the first 19 names followed by an ellipsis and the final author’s name). However, if authors shorten the author group by using et al., this will be retained.

Reference list

The list of references should only include works that are cited in the text and that have been published or accepted for publication. Personal communications and unpublished works should only be mentioned in the text.

Reference list entries should be alphabetized by the last names of the first author of each work.

Journal names and book titles should be italicized.

If available, please always include DOIs as full DOI links in your reference list (e.g. “https://doi-org.uea.idm.oclc.org/abc”).

Tables

All tables are to be numbered using Arabic numerals.

Tables should always be cited in text in consecutive numerical order.

For each table, please supply a table caption (title) explaining the components of the table.

Identify any previously published material by giving the original source in the form of a reference at the end of the table caption.

Footnotes to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data) and included beneath the table body.

Artwork and Illustrations Guidelines

Electronic Figure Submission

Supply all figures electronically.

Indicate what graphics program was used to create the artwork.

For vector graphics, the preferred format is EPS; for halftones, please use TIFF format. MSOffice files are also acceptable.

Vector graphics containing fonts must have the fonts embedded in the files.

Name your figure files with "Fig" and the figure number, e.g., Fig1.eps.

Line Art

Definition: Black and white graphic with no shading.

Do not use faint lines and/or lettering and check that all lines and lettering within the figures are legible at final size.

All lines should be at least 0.1 mm (0.3 pt) wide.

Scanned line drawings and line drawings in bitmap format should have a minimum resolution of 1200 dpi.

Vector graphics containing fonts must have the fonts embedded in the files.

Halftone Art

Definition: Photographs, drawings, or paintings with fine shading, etc.

If any magnification is used in the photographs, indicate this by using scale bars within the figures themselves.

Halftones should have a minimum resolution of 300 dpi.

Combination Art

Definition: a combination of halftone and line art, e.g., halftones containing line drawing, extensive lettering, color diagrams, etc.

Combination artwork should have a minimum resolution of 600 dpi.

Color Art

Color art is free of charge for online publication.

If black and white will be shown in the print version, make sure that the main information will still be visible. Many colors are not distinguishable from one another when converted to black and white. A simple way to check this is to make a xerographic copy to see if the necessary distinctions between the different colors are still apparent.

If the figures will be printed in black and white, do not refer to color in the captions.

Color illustrations should be submitted as RGB (8 bits per channel).

Figure Lettering

To add lettering, it is best to use Helvetica or Arial (sans serif fonts).

Keep lettering consistently sized throughout your final-sized artwork, usually about 2–3 mm (8–12 pt).

Variance of type size within an illustration should be minimal, e.g., do not use 8-pt type on an axis and 20-pt type for the axis label.

Avoid effects such as shading, outline letters, etc.

Do not include titles or captions within your illustrations.

Figure Numbering

All figures are to be numbered using Arabic numerals.

Figures should always be cited in text in consecutive numerical order.

Figure parts should be denoted by lowercase letters (a, b, c, etc.).

If an appendix appears in your article and it contains one or more figures, continue the consecutive numbering of the main text. Do not number the appendix figures,"A1, A2, A3, etc." Figures in online appendices [Supplementary Information (SI)] should, however, be numbered separately.

Figure Captions

Each figure should have a concise caption describing accurately what the figure depicts. Include the captions in the text file of the manuscript, not in the figure file.

Figure captions begin with the term Fig. in bold type, followed by the figure number, also in bold type.

No punctuation is to be included after the number, nor is any punctuation to be placed at the end of the caption.

Identify all elements found in the figure in the figure caption; and use boxes, circles, etc., as coordinate points in graphs.

Identify previously published material by giving the original source in the form of a reference citation at the end of the figure caption.

Figure Placement and Size

Figures should be submitted within the body of the text. Only if the file size of the manuscript causes problems in uploading it, the large figures should be submitted separately from the text.

When preparing your figures, size figures to fit in the column width.

For large-sized journals the figures should be 84 mm (for double-column text areas), or 174 mm (for single-column text areas) wide and not higher than 234 mm.

For small-sized journals, the figures should be 119 mm wide and not higher than 195 mm.

Accessibility

In order to give people of all abilities and disabilities access to the content of your figures, please make sure that

All figures have descriptive captions (blind users could then use a text-to-speech software or a text-to-Braille hardware)

Patterns are used instead of or in addition to colors for conveying information (colorblind users would then be able to distinguish the visual elements)

Any figure lettering has a contrast ratio of at least 4.5:1

Generative AI Images

Please check Springer’s policy on generative AI images and make sure your work adheres to the principles described therein.

Supplementary Information (SI)

Springer accepts electronic multimedia files (animations, movies, audio, etc.) and other supplementary files to be published online along with an article or a book chapter. This feature can add dimension to the author's article, as certain information cannot be printed or is more convenient in electronic form.

Before submitting research datasets as Supplementary Information, authors should read the journal’s Research data policy. We encourage research data to be archived in data repositories wherever possible.

Appendix I: Summary Statistics for Meta-analysis of T1 to Tk Effect Sizes for Demandingness/Control

Study	Reported by	M_1	M_2	S_1	S_2	N	r	Hedges' g	CI Lower limit	CI Upper limit	Weight
Peng 2024	adolescent	2.65	2.67	0.73	0.81	4990	0.49	0.03	0.00	0.05	2.80%
Meisel & Colder, 2022	adolescent	4.12	4.06	0.51	0.55	387	0.46	-0.11	-0.22	-0.01	2.66%
Gan et al., 2021	adolescent males	1.88	1.82	0.35	0.37	410	0.07	-0.17	-0.30	-0.03	2.57%
Gan et al., 2021	adolescent females	1.83	1.80	0.37	0.37	493	0.07	-0.08	-0.20	0.04	2.61%
Kaniušonytė & Laursen, 2021	adolescent (behavioural control)	4.09	3.96	0.73	0.76	454	0.57	-0.17	-0.26	-0.09	2.70%
Kaniušonytė & Laursen, 2021	adolescent (mother's psychological control)	1.38	1.39	0.26	0.31	454	0.62	0.03	-0.05	0.11	2.72%
Kaniušonytė & Laursen, 2021	adolescent (father's psychological control)	1.35	1.36	0.35	0.49	454	0.55	0.02	-0.06	0.11	2.70%
Leung 2021	adolescent (mother's control)	3.11	3.00	0.91	0.89	1463	0.54	-0.12	-0.17	-0.07	2.77%
Leung 2021	adolescent (father's control)	2.59	2.51	0.81	0.80	1463	0.50	-0.10	-0.15	-0.05	2.77%
Baduat et al., 2020	adolescent	1.99	1.94	0.66	0.74	473	0.42	-0.07	-0.17	0.03	2.68%
Van Heel et al., 2014	adolescent	1.87	1.92	0.66	0.61	1116	0.80	0.08	0.04	0.12	2.79%
van Heel et al., 2014	father	1.96	1.75	0.52	0.60	645	0.81	-0.37	-0.41	-0.32	2.77%
van Heel et al., 2014	mother	1.87	1.58	0.51	0.42	747	0.62	-0.61	-0.68	-0.54	2.74%
Rogers et al., 2019	adolescent (mother's control)	1.68	2.08	0.63	0.83	500	0.31	0.54	0.43	0.65	2.64%
Rogers et al., 2019	adolescent (father's control)	1.65	1.85	0.61	0.77	500	0.31	0.29	0.18	0.39	2.66%
Van lissa et al., 2019	adolescent (mother's behavioural control)	3.39	2.58	1.03	1.05	475	0.31	-0.78	-0.90	-0.66	2.61%
Van lissa et al., 2019	adolescent (father's behavioural control)	2.97	2.28	1.04	1.00	436	0.32	-0.68	-0.80	-0.55	2.61%
van lissa et al., 2019	adolescent (mother's psychological control)	1.77	1.80	0.72	0.76	475	0.21	0.04	-0.07	0.15	2.63%
van lissa et al., 2019	adolescent (father's psychological control)	1.90	1.85	0.77	0.75	436	0.25	-0.07	-0.18	0.05	2.63%
Missotten et al., 2018	adolescent	2.02	1.99	0.61	0.65	819	0.66	-0.05	-0.10	0.01	2.76%
Zhang et al., 2017	mother	2.14	2.15	0.70	0.66	2173	0.47	0.01	-0.03	0.06	2.78%
Rousseau et al., 2013	mother	1.67	1.72	0.41	0.42	1499	0.59	0.12	0.07	0.17	2.78%
Carrusco et al., 2011	adolescent (mother's control)	25.35	24.53	4.35	4.57	523	0.33	-0.18	-0.28	-0.08	2.67%
Carrusco et al., 2011	adolescent (father's control)	24.96	23.80	4.35	4.35	523	0.30	-0.27	-0.37	-0.16	2.66%
Willoboughy & Hamza, 2011	adolescent males	2.95	2.46	0.64	0.72	1463	0.29	-0.72	-0.79	-0.65	2.74%
Willoboughy & Hamza, 2011	adolescent females	3.09	2.71	0.64	0.78	1478	0.30	-0.53	-0.59	-0.47	2.75%
Schofield et al., 2009	mother	4.28	4.11	0.36	0.59	399	0.42	-0.33	-0.44	-0.23	2.65%
Schofield et al., 2009	father	4.05	3.92	0.38	0.61	382	0.49	-0.24	-0.35	-0.14	2.66%
Schofield et al., 2009	adolescent (mother's control)	3.83	3.85	0.56	0.72	424	0.42	0.03	-0.07	0.13	2.66%
Schofield et al., 2009	adolescent (father's control)	3.54	3.46	0.72	0.87	424	0.49	-0.10	-0.20	0.00	2.68%
de Exter Blokland et al., 2007	adolescent	3.51	3.47	0.67	0.67	1012	0.52	-0.06	-0.12	0.00	2.76%
Shek, 2007	adolescent (mother's control)	21.82	22.19	6.79	6.69	2758	0.47	0.05	0.02	0.09	2.79%
Shek, 2007	adolescent (father's control)	21.49	21.60	6.39	6.31	2758	0.50	0.02	-0.02	0.05	2.79%
Wang et al., 2007, USA sample	adolescent (psychological control)	2.57	2.51	0.88	0.99	373	0.68	-0.06	-0.14	0.02	2.72%
Wang et al., 2007, USA sample	adolescent (behavioural control)	3.53	3.44	0.69	0.79	373	0.58	-0.12	-0.21	-0.03	2.69%
Wang et al., 2007, China sample	adolescent (psychological control)	2.77	2.92	0.78	0.84	433	0.58	0.18	0.10	0.27	2.70%
Wang et al., 2007, China sample	adolescent (behavioural control)	3.39	3.36	0.66	0.73	433	0.54	-0.04	-0.13	0.05	2.69%

Appendix J: Summary Statistics for Meta-analysis of T1 to Tk Effect Sizes for Responsiveness/Warmth

Study	Reported by	M_1	M_2	S_1	S_2	N	r	Hedges' g	CI Lower limit	CI Upper limit	Weight
Richardson et al., 2023	parent	21.03	19.66	2.30	2.77	531	0.49	-0.53	-0.62	-0.44	4.48%
Richardson et al., 2023	adolescent	20.39	17.92	3.00	3.92	531	0.34	-0.70	-0.81	-0.59	4.33%
Meisel & Colder, 2022	adolescent	4.22	4.18	0.54	0.62	387	0.47	-0.07	-0.17	0.03	4.39%
Gan et al., 2021	adolescent males	2.82	2.74	0.62	0.64	410	0.04	-0.13	-0.26	0.01	4.09%
Gan et al., 2021	adolescent females	2.73	2.69	0.70	0.68	493	0.04	-0.06	-0.18	0.06	4.21%
Kaniušonytė & Laursen, 2021	adolescent (mother's warmth)	4.12	3.99	0.80	0.80	454	0.35	-0.16	-0.27	-0.06	4.36%
Kaniušonytė & Laursen, 2021	adolescent (father's warmth)	3.83	3.84	1.06	0.84	454	0.44	0.01	-0.09	0.11	4.44%
Van Heel et al., 2014	adolescent	3.99	3.98	0.64	0.56	1116	0.80	-0.02	-0.05	0.02	4.82%
van Heel et al., 2014	father	4.29	4.20	0.40	0.43	645	0.90	-0.21	-0.25	-0.18	4.83%
van Heel et al., 2014	mother	4.00	3.91	0.54	0.63	747	0.85	-0.15	-0.19	-0.11	4.81%
Lippold et al., 2018	mean of mother & adolescent	6.09	6.00	0.77	0.87	636	0.69	-0.11	-0.17	-0.05	4.70%
Lippold et al., 2018	mean of father & adolescent	5.65	5.56	1.03	1.15	636	0.73	-0.08	-0.14	-0.02	4.73%
Missotten et al., 2018	adolescent	4.02	4.02	0.75	0.77	819	0.64	0.00	-0.06	0.06	4.72%
Zhang et al., 2017	mother	3.26	3.29	0.61	0.59	2173	0.50	0.05	0.01	0.09	4.80%
Rousseau et al., 2013	mother	4.10	3.98	0.49	0.55	1499	0.69	-0.23	-0.27	-0.19	4.81%
Carrusco et al., 2011	adolescent (mother's warmth)	57.73	57.40	6.63	6.40	523	0.32	-0.05	-0.15	0.05	4.41%
Carrusco et al., 2011	adolescent (father's warmth)	56.39	55.67	6.63	6.86	523	0.36	-0.11	-0.20	-0.01	4.44%
Schofield et al., 2009	mother	3.96	4.05	0.46	0.56	399	0.63	0.17	0.09	0.26	4.54%
Schofield et al., 2009	father	3.67	3.77	0.47	0.58	382	0.47	0.19	0.08	0.29	4.38%
Schofield et al., 2009	adolescent (mother's warmth)	3.51	3.68	0.77	0.80	424	0.63	0.22	0.13	0.30	4.55%
Schofield et al., 2009	adolescent (father's warmth)	3.44	3.45	0.80	0.81	424	0.47	0.01	-0.09	0.11	4.43%
de Exter Blokland et al., 2007	adolescent	4.03	3.98	0.53	0.64	1012	0.53	-0.08	-0.14	-0.02	4.71%

Appendix K: Empirical Paper Supplementary Tables

Supplementary Table 1

GMM of Parent Rated APQ Monitoring/supervision

	2 class				3 class				4 class			
	linear	quad	cubic	free loading	linear	quad	cubic	free loading	linear	quad	cubic	free loading
SA BIC	10716.74	10696.36	10697.96	10674.372	10706.9	10684.97	10690.49	10664.477	10664.48	10707.03	10683.76	10663.059
Entropy	0.592	0.61	0.644	0.631	0.499	0.53	0.567	0.541	0.541	0.55	0.584	0.614
Tech11 p	0.0001	0.0001	0.2398	0.0001	0.0543	0.0133	0.0724	0.0284	0.0284	0.2443	0.3264	0.147

Supplementary Table 2

GMM of Parent Rated APQ Positive Parenting

	2 class				3 class			
	linear	quad	cubic	free loading	linear	quad	cubic	free loading
SA BIC	8964.5	8966.384	8984.506	8963.306	8871.685	8914.529	8931.772	8832.505
Entropy	0.773	0.776	0.774	0.766	0.711	0.705	0.851	0.70
Tech11 p	0.0012	0.000	0.2398	0.0027	0.2403	0.3877	0.2361	0.27

Supplementary Table 3

GMM of Adolescent rated APQ Monitoring/supervision

	2 class				3 class			
	linear	quad	cubic	free loading	linear	quad	cubic	free loading
SA BIC	10521.88	10512.27	10525.45	10511.983	10526.58	10517.7	10527.53	10505.81
Entropy	0.475	0.49	0.538	0.517	0.538	0.57	0.56	0.581
Tech11 p	0.0149	0.0916	0.2396	0.0252	0.49	0.2808	0.2392	0.073

Supplementary Table 4

Adolescent Rated APQ Positive Parenting

	2 class				3 class			
	linear	quad	cubic	free loading	linear	quad	cubic	free loading
SA BIC	10735.22	10731.1	10745.32	10730.47	10730.22	10712.87	10679.26	10707.71
Entropy	0.579	0.732	0.755	0.748	0.652	0.712	0.826	0.716
Tech11 p	0.0051	0.0001	0.2393	0.0018	0.3011	0.3849	0.2397	0.0515