



# Parenting dimensions/styles and emotion dysregulation in childhood and adolescence: a systematic review and Meta-analysis

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## Abstract

Emotion dysregulation is a transdiagnostic factor in the development of various mental and behavioral disorders, thus requiring ample evidence for prevention and intervention approaches. The aim of the current systematic review and meta-analysis was to investigate the association between parenting dimensions/styles and emotion dysregulation in childhood and adolescence. Following the PRISMA guidelines, the review was registered (PROSPERO CRD42021251672) and search terms were entered in Web of Science, Scopus, PsycINFO, and PubMed in May 2021. Articles needed to report on empirical studies that examined the association between parenting dimensions/styles and emotion dysregulation in children/adolescents with primary data, and be published in English in a peer-reviewed journal. Additionally, articles were excluded based on certain designs and focus on special populations. The narrative synthesis includes 30 articles, and of which 27 are included in the meta-analysis. An NHLBI tool with 14 items (e.g., validity) was utilized for assessing the quality of the included studies. General trends indicate that positive parenting (e.g., warmth, supportiveness) is negatively associated with emotion dysregulation, whilst negative parenting (e.g., psychological control, authoritarian) is positively associated. The meta-analysis reveals an overall small yet significant effect, however, the heterogeneity of the studies is moderate to high. A funnel plot demonstrated no evidence of publication bias. Limitations include the varying conceptualizations of emotion dysregulation, as well as a lacking focus on specific types of emotion. Although more research is needed, addressing factors such as culture, gender, and age, the review provides first indications of the significance of parenting dimensions/styles for emotion dysregulation.

**Keywords** Parenting · Emotion dysregulation · Childhood · Adolescence · Systematic review · Meta-analysis

## Introduction

Emotion dysregulation places children and adolescents at risk of concurrent and lifetime maladjustment, including a heightened risk of internalizing and externalizing behavior problems (Aldao et al., 2010; Compas et al., 2017). Given these severe outcomes, there is a clear need to uncover risk and protective factors that influence the development of emotion dysregulation, so that adequate prevention and intervention strategies can be created. One of the most important factors in the development of emotion regulation

and dysregulation is the family environment. This includes parent-child attachments (Brumariu, 2015; Zimmer-Gembeck et al., 2017), parental emotion regulation skills, emotion-related parenting practices (Morris et al., 2017), as well as parenting dimensions and styles (Eisenberg et al., 1998; Eisenberg, 2020). Exemplary models describing the influence of parenting on emotion regulation are the tripartite model by Morris et al. (2007) and the heuristic model of the socialization of emotion by Eisenberg et al. (1998). The importance of parenting dimensions/styles in children's development has a long research history (Baumrind, 1966, 1978), with evidence indicating that parenting programs are generally effective (Barlow & Coren, 2018), even for school-aged children (Gardner et al., 2019) and adolescents (Alfredsson et al., 2018). Given the increased focus on emotion regulation and dysregulation in childhood and adolescence, we maintain that a comprehensive systematic review and meta-analysis of empirical studies that have focused on

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the association between parenting dimensions/styles and emotion dysregulation, would be a beneficial contribution for both research and practice.

## Theoretical Background

### Emotion Dysregulation

Despite an increasing research interest in emotion dysregulation, consensus concerning its definition has not yet occurred (Weinberg & Klonsky, 2009). To provide a working definition for the current systematic review and meta-analysis, we first draw upon definitions of emotion regulation, which is conceptualized as a multidimensional construct involving numerous components. Emotion regulation is a core aspect of emotional competence (Saarni, 1999), and consists of “the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one’s goals” (Thompson, 1994, p. 27–28). Differences in the self-management of emotions, including emotion recognition, emotional awareness, emotion monitoring, and appropriate emotion expression, as well as emotion modification through different types of strategies, already emerge during early childhood (Denham & Brown, 2010).

Emotion dysregulation is a defining aspect in many forms of psychopathology, and can be described as emotional experiences or expressions that interfere with one’s goal-directed activity (Thompson, 2019). Cole et al. (2017) identified four types of dysregulated emotion, namely (1) persistent emotions and ineffective regulatory attempts, (2) emotions cause interference with appropriate behaviour, (3) experienced and expressed emotions are inappropriate for the context, and/or (4) emotions change too slowly or too fast. Emotion dysregulation is not the mere absence of adaptive emotion regulation strategies, but rather the use of maladaptive, dysfunctional, and ineffective emotion regulation strategies that may have served a specific function, but currently impair social, cognitive, and interpersonal functioning as well as experienced and expressed emotions that interfere with appropriate goal-directed activity (Cole et al., 1994; Cole & Hall, 2008; Livingstone et al., 2009; Thompson, 2019). Maladaptive emotion regulation encompasses numerous strategies, such as catastrophizing, rumination, avoidance (Allen et al., 2016). Another maladaptive emotion regulation strategy is expressive suppression (Gross & John, 2003) or emotion inhibition, in which one actively inhibits the observable behavioral expression of an emotional experience. Furthermore, we include emotion lability, which is often operationalized with wide mood swings, lack of flexibility and the dysregulation of negative emotions (Shields & Cicchetti, 1997).

### Parenting Dimensions and Styles

There is an unlimited number of parenting practices that can be classified into core parenting dimensions and styles, that essentially reflect the features and quality of parent-child interactions within the family climate. Researchers utilize varying definitions and operationalizations, which impacts the development of survey instruments, theoretical frameworks, and the interpretation of research outcomes (Baumrind, 1966; Calders et al., 2020; Skinner et al., 2005). For the current systematic review we mainly draw upon conceptualizations proved by Skinner et al. (2005), who classify parenting practices under the dimensions of parental warmth (i.e., open expression of affection and caring, and emotional availability), autonomy support (i.e., encouragement of independence, via expression of preferences and opinions), and structure (i.e., consistent and predictable interactions) as distinct positive dimensions of parenting, and parental rejection (i.e., active aversion and hostility, as well as harsh and irritable interactions), coercion (i.e., restrictive, overcontrolling, authoritarian, and intrusive interactions), and chaos (i.e., inconsistent parenting behaviors and erratic interactions) as negative dimensions of parenting. Coercion is often referred to as psychological control (Skinner et al., 2005), and structure as behavioral control, with conceptual labels including parental supervision and monitoring (Barber et al., 2005). Although these cover many practices additional dimensions exist, including parental responsiveness (i.e., inductive and supportive reactions to emotions, Gülseven et al., 2018; Otterpohl & Wild, 2015; van Lissa et al., 2019), parental overprotection (i.e., over-managing of situations and restriction of behaviors and independence, Coplan et al., 2009; Jaffe et al., 2009), and negligence (i.e., ignoring, rejecting, and denying needs and the expression of emotion, Byrd et al., 2021; Liu, 2020; Llorca et al., 2017; Yu et al., 2013). Parenting dimensions may be combined to form parenting typologies or styles. Baumrind (1966) classified these as authoritative parenting (i.e., high levels of support and nurturance, firm control of behavior), authoritarian parenting (i.e., restrictive control, coercive, and punitive parenting practices, little emotional availability and warmth), and permissive parenting (i.e., low control and demandingness, and high communication and responsiveness). Harshness is entailed in parental rejection, yet when labelled as harsh parenting, it may not only entail rejection but also coercive and chaotic parenting dimensions (Skinner et al., 2005). Whilst the provision of support is entangled in definitions of parental warmth and structure, yet when labelled as supportive parenting, it may refer to a more generalized description of good or high-quality parenting, which includes warmth, structure, and autonomy support (Skinner et al., 2005).

## Parenting in the Development of Emotion (Dys) Regulation

Morris et al. (2007) proposed a tripartite model to describe how parents influence the development of emotion regulation in their children according to three mechanisms, namely via observation (e.g., modeling), parenting practices (e.g., reactions to emotions), and the emotional climate of the family (e.g., warm, supportive, controlling parenting). Although these are likely to be interrelated, they indicate separate mechanisms to influence the development of emotion regulation in children and adolescents (Morris et al., 2007). Morris et al. (2007) note that parenting styles are central to the family climate, and as we focus on parenting styles in the current review, we draw exclusively upon the third mechanism. Morris et al. (2007) note that when the climate of the family is negative, which is in part created by coercive, demanding, and unpredictable parenting (styles), children are at risk in becoming highly emotionally reactive and are less emotionally secure. When the climate is positive, which is evoked by responsive, supportive, and consistent parenting (styles), children feel free to express their emotions and become emotionally secure.

In their heuristic model of the socialization of emotion, Eisenberg et al. (1998) similarly highlight the importance of parenting styles for emotion-related parenting practices that in turn influence the development of children's emotion regulation. Thompson (2019) states that although most research (and models) pertain to family influences in the development of emotion regulation, similar mechanisms would contribute to the development of emotion dysregulation. This includes the general emotional climate of the family, observational learning, parenting practices (related to emotion socialization), and secure parent–child relationships (Thompson, 2019). Arguing from a functionalist view, Thompson (2019) describes that challenges in the home environment can undermine the development of emotion regulation, as children are required to substitute the goal of improving their social-emotional competence (including emotion regulation) for alternative goals that are relevant for coping in their home environment. For instance, children's oppositional behavior and emotional lability in coercive home environments is believed to provide an escape and foster a sense of control, even if it does carry subsequent health risks (Thompson, 2019). In summary, parenting styles, dimensions, and practices have consequences for the social-emotional development of children and adolescence (Denham et al., 2009; Rose-Krasnor & Denham, 2009), including their emotion regulation (Eisenberg et al., 1998; Morris et al., 2007) and dysregulation (Thompson, 2019).

## Current Objectives

With an aggregative systematic review (see Gough et al., 2012), we intended to thematically and meta-analytically synthesize the findings of empirical studies to answer the following review question:

*What associations exist between different parenting dimensions and styles and emotion dysregulation in childhood and adolescence?*

We hypothesized to find negative associations between positive parenting dimensions/styles and emotion dysregulation, and positive associations between negative parenting dimensions/styles and emotion dysregulation. However, we also sought to uncover differences in the associations with different positive and negative parenting dimensions/styles, as well as exploring potential moderators. With a meta-analysis, we intended to statistically examine the overall association between parenting dimensions/styles and emotion dysregulation in childhood and adolescence. Based on previous meta-analyses that examined the influence of parenting for different outcomes in childhood and adolescence (e.g., Pinquart & Gerke, 2019), we hypothesized small-to-moderate effect sizes. Furthermore, we set out to examine moderators based on samples and methods; we had no hypotheses on the direction of the moderator effects.

## Methods

The systematic review and meta-analysis were undertaken with the EPPI-Reviewer software (Thomas et al., 2020) and followed the PRISMA guidelines (Page et al., 2021). A protocol was drafted (contact authors for details) and the review was registered on PROSPERO (CRD42021251672).

## Search Strategy

To identify studies that investigated the association between parenting dimensions and styles and emotion dysregulation in childhood and adolescence, the following search terms were selected:

Parent\* AND (“emotion\* dysregulation” OR “emotion\* regulation” OR “affect\* dysregulation” OR “affect\* regulation” OR “emotion\* reactivity” OR “emotion\* impulsivity” OR “emotion\* labil\*” OR “mood regulation” OR “mood dysregulation” OR “emotion\*

control” OR “emotion-focused coping” OR “affect\* instability” OR “emotion instability” OR “mood instability” OR “mood lability” OR “emotion\* modulation” OR “affect\* modulation” OR “affect\* reactivity” OR “affect\* function\*” OR “emotion\* function\*”)

As authors have utilized various terminologies for the broad category of parenting dimensions and styles (see Skinner et al., 2005), we opted to use a singular open term that would preliminarily encompass all types. As emotion dysregulation is a multidimensional construct with various definitions existing (see Thompson, 2019), we opted to preliminarily include search terms that encompassed both emotion regulation and dysregulation; furthermore, we examined the search terms utilized by previous systematic reviews/meta-analyses dealing with emotion dysregulation and extracted those that adequately represented synonymous or aspects of emotion dysregulation. The selected search terms were entered into Web of Science, Scopus, PsycINFO, and PubMed in May 2021. For the databases that allow restrictions in their search, we restricted results by languages (only English) and document types (only articles), in accordance with our eligibility criteria. In addition, we conducted a backward and forward reference search (via Web of Science and Google Scholar) of five review articles that dealt with aspects of parenting and emotion regulation (England-Mason & Gonzalez, 2020; Lavi et al., 2019; Petersen et al., 2017; Tan et al., 2020; Zimmer-Gembeck et al., 2017).

### Eligibility Criteria

To be included in the systematic review, articles were required to (1) be relevant for the topic under investigation, i.e., included under the following conditions (a) assess parenting dimensions and/or styles in parents: the assessment can focus on singular or combined parenting dimensions/styles in mothers and/or fathers; assessment can be via self-report, other-report, and/or observation (b) assess emotion dysregulation during childhood and/or adolescence: an assessment of emotion dysregulation in participants between 6 and 18 years of age; if the age of the participants falls slightly outside of the range, due to the data collection procedure, the articles are still included; assessment can be via self-report, other-report, and/or observation (c) investigate the association between parenting styles/dimensions and emotion dysregulation: specifically formulate a research question, hypothesis, and/or conduct inferential statistical analysis to examine the association between the two constructs; studies which focus on this association within a moderation or mediation analysis are still included, (2) report on empirical studies with primary data, (3) be published in English, (4) be published in a peer-reviewed journal.

Articles were excluded from the systematic review if they (1) are considered grey literature; such as dissertations, theses, conference papers, editorials, books, book chapters, and reports, (2) reported secondary or summarized data; review articles and theoretical papers are also excluded, (3) reported on interventions, trainings, therapies, as well as experimental, qualitative, or case studies; as these vary greatly in their epistemological, theoretical, and methodological underpinnings, (4) focused on parents with a medical diagnosis; including mental/behavioral disorders, (5) focused on maltreated, abused, or neglected children, (6) focused on children within foster care or adopted children. To be included in the meta-analysis, articles were additionally required to report statistical values required to calculate effect sizes.

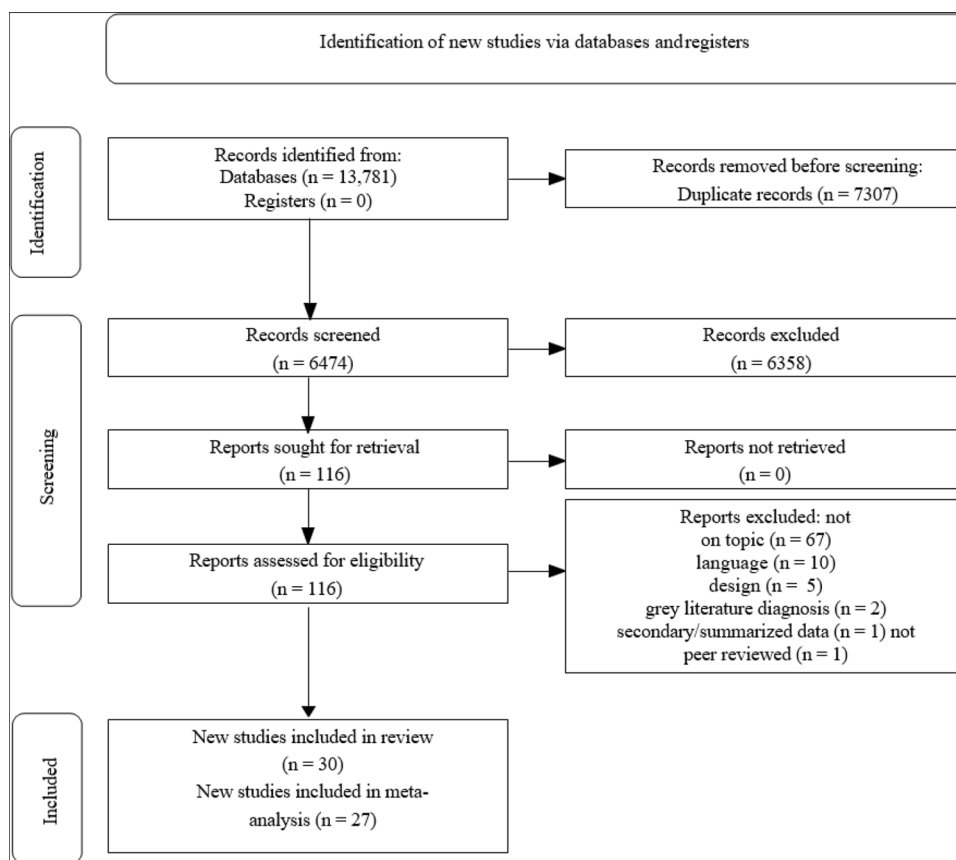
### Article Selection and Data Extraction

Figure 1 displays the article selection in a flow diagram. After all duplicate records were removed, a total of 6474 articles remained. First the eligibility criteria were applied in a title and abstract screening by two independent coders (97.1% agreement on inclusion/exclusion). Thereafter, two independent coders conducted full-text screening based on the eligibility criteria (94.0% agreement on inclusion/exclusion); an additional 13 articles were removed after team discussions. Two coders collaboratively extracted the data from the remaining articles (see Table S1 for data extraction codebook). The narrative synthesis groups examined parenting styles/dimensions per type (guided by Baumrind, 1978 and Skinner et al., 2005), as well as generalizing these as positive and negative based on previous theoretical understanding and links with adaptive/maladaptive outcomes.

### Meta-Analysis

To analyze the relationship between parenting and emotion dysregulation we conducted a meta-analysis with random effect models in RStudio 2021 (Ellis, 2010; Lipsey & Wilson, 2001; Rosenthal, 1994; R Core Team, 2020). We hypothesized (1) a positive association between negative parenting and emotion dysregulation, and (2) a negative association between positive parenting and emotion dysregulation. First, a general model was calculated, in which we recoded all associations in the same direction to make the results comparable. Secondly, we created models that differentiated between positive and negative parenting. In some studies, it was not clear whether the examined parenting dimension/style was classified as positive or negative, in which case they were not included in the meta-analysis (e.g., behavioral control, parental permissiveness). Due to the different methods used in the studies, we decided to extract r-values as an effect size specification. Delta-values ( $\Delta$ ) were used to summarize the combined effect size. The

**Fig. 1** Flow diagram. *Note:* Adapted version of the Flow diagram (see Haddaway et al., 2021)



meta-analytic results are presented in forest plots. Additionally, funnel plots, Egger's Regression Tests, Rank Correlation Tests and Fail-Safe N's were examined for possible publication bias (Egger et al., 1997; Orwin, 1983; Rosenthal, 1979). To identify sources of heterogeneity Cochran's  $Q$ , Higgin's and Thompson's  $I^2$ ,  $\tau^2$  and  $p$  were reported.

### Moderator Analyses

Based on methodological and statistical differences, we examined eight subgroups to determine whether these had a moderating effect onto the association. As a statistically relevant moderator we opted to assess sample power; we calculated the sample power (post hoc) with G\*Power (Faul et al., 2007, 2009), categorizing these into good (>.95), sufficient (.95–.85), and bad (<.85). Regarding methodologically relevant moderators, we included the design of the studies (i.e., cross-sectional versus longitudinal), the source of the parenting report (i.e., assessment completed by parents, children/adolescents, or both), and the source of the emotion dysregulation report (i.e., assessment completed by parents, children/adolescents, or both). Regarding the sample, we included subgroup analyses for the continent from which these were recruited (i.e., North America, Europe,

Australia, Asia, and South America) and sample type (i.e., clinical or at-risk samples versus community or school-based samples). Additionally, we assessed age as a moderator; we created an age subgroup depending on the mean age of the participants and categorized the sample (articles) as either middle/late childhood (6–11 years) or adolescence (10–20 years; Schneider & Lindenberger, 2012). Lastly, we utilized the results of the quality assessment (i.e., poor, fair, and good) as a subgroup.

### Quality Assessment

The NHLBI Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies 14-item checklist was used to assess the quality of the articles included in the systematic review. The tool was developed to assist reviewers in focusing on the internal validity, as well as potential shortcomings in the methods (and implementation) of studies included in the systematic review process (National Heart, Lung, and Blood Institute, 2021). Many librarians have listed the tool for the quality appraisal of non-randomized or observational studies in systematic reviews. Two independent coders completed the checklist and provided an overall

quality rating for each article (83.33% agreement on rating; see Table S2).

## Results

### Narrative Synthesis

Table 1 provides a summary of the 30 articles included in the thematic narrative synthesis. The articles were published from 2009 to 2021. Seven articles reported a longitudinal design, with data collection ranging from approx. Six months to four years. The articles encompassed samples from Asia ( $n = 11$ ), Europe ( $n = 10$ ), North America ( $n = 6$ ), and Australia ( $n = 2$ ), and one article compared a European and South American sample. Different questionnaires were utilized in the studies, yet all reported Likert-scale items. In our synthesis we only focus on the results of each article that pertained to parenting dimensions/styles and their direct association with emotion dysregulation. Furthermore, we only report results that align with our review question, and our general conceptualization of parenting as the independent (predictor) variable and emotion dysregulation as the dependent (outcome) variable. Unless specifically stated, we draw upon the results from the regression analysis (including structural equation and path models).

### Positive Parenting Dimensions and Styles

Merging several parenting dimensions (including warmth, supportiveness, positive reinforcement, and reverse-coded hostility and control), Yan et al. (2021) found that generalized positive parenting had a direct negative effect on concurrent emotion lability during childhood.

### Parental Warmth

Jaffe et al. (2009) found that perceived parental warmth had a direct negative effect on concurrent expressive suppression in late childhood. Similarly, Walton and Flouri (2009) found that adolescents perceived maternal warmth had a direct negative effect on concurrent emotion dysregulation. Within the same sample, McEwen and Flouri (2009) found that perceived paternal warmth had no direct effect. Relying on both adolescents' self-reports and mother-reports, Saritaş et al. (2013) found that maternal (emotional) warmth did not predict concurrent emotion dysregulation. Lastly, Gómez-Ortiz et al. (2019) found that neither perceived maternal nor paternal warmth (i.e., affection, communication, humor, and

disclosure) predicted adolescents' concurrent emotion suppression.

### Autonomy Support

Rueth et al. (2017) found that adolescents' perceived autonomy support from their parents did not predict their self-reported usage of maladaptive anger regulation strategies one year later. Although no gender differences emerged when drawing upon self-reports, Rueth et al. (2017) found that this was not the case for parent-reports. For boys, parent-reported autonomy support negatively predicted maladaptive anger regulation strategies, whilst autonomy support did not have predictive utility for girls. Examining associations during early adolescence (via self-report), Brenning et al. (2015) found that maternal autonomy support negatively predicted sadness suppression one year later, but not sadness dysregulation. Furthermore, Allen et al. (2016) found that situationally observed parental autonomy support could not predict concurrent maladaptive emotion regulation strategies in clinically anxious youth, and Gómez-Ortiz et al. (2019) found that adolescents' perceived maternal and paternal autonomy support did not predict their concurrent emotion suppression.

### Structure (Behavior Control)

McEwen and Flouri (2009) report that adolescents' perceived paternal behavioral control (i.e., knowledge, monitoring, discipline) had no association with concurrent emotion dysregulation. Furthermore, Walton and Flouri (2009) also found no direct effect from perceived maternal behavioral control. Similarly, Gómez-Ortiz et al. (2019) found that adolescents perceived maternal and paternal behavioral control did not predict their concurrent emotion suppression. van Lissa et al. (2019) found that parent-reported behavioral control (both mothers' and fathers') did not consequently predict adolescents' emotion dysregulation one year later, measured annually over a four-year time span. The same was found for adolescent-reported maternal behavioral control; however, paternal behavior control positively predicted emotion dysregulation one year later, for three consecutive years. Balan et al. (2017) found that perceived poor parental monitoring had a direct positive effect on expressive suppression during early adolescence.

### Authoritative Parenting

Examining associations in left-behind children in China (i.e., children/adolescents who remain in rural areas while their parents leave to urban areas for work), Liu

**Table 1** Characteristics of the included articles

Authors	Country	Sample	N	Age M (SD)	Sex F%	Design	Parenting		Emotion Dysregulation	
							Measure [Scales]	Source	Measure [Scales]	Source
Allen et al. (2016)	USA	Clinical	131	11.0 (1.5)	55.0	Cross-sectional	Behavioral observation of an interaction task [parental autonomy granting]	Researcher-report	Items developed by Silk et al. (2003) and assessed via EMA [maladaptive emotion regulation strategies]	Child-report
Balan et al. (2017)	Romania	School	1132	11.7 (.8)	22.2	Cross-sectional	APQ [Inconsistent discipline, corporal punishment, poor monitoring]	Child-report	ERQ-CA [expressive suppression]	Child-report
Brenning et al. (2015)	Belgium	Community	311	12.0 (1.4)	53.7	Longitudinal (1 yr.)	PPS [autonomy support]	Child-report	Items developed by Roth et al. (2019) [suppression, dysregulation]	Child-report
Byrd et al. (2021)	USA	Clinical	162	12.0 (.9)	47.0	Longitudinal (9 mths.)	Items developed by authors and assessed via EMA [supportive and unsupportive parental responses to conflicts and problems]; Behavioral observation of conflict discussions [supportive and unsupportive responses]	Child-report, Parent-report, Clinician-report	Items developed by authors and assessed via EMA [overall level of negative emotion, variability in negative emotion, frequency of negative emotion – merged to emotion dysregulation]	Child-report
Coplan et al. (2009)	Canada	School	258	6.3 (.9)	49.1	Cross-sectional	PSDQ [authoritative parenting, authoritarian parenting]; Items developed by Coplan et al., (2004) [overprotective parenting]	Parent-report	CCTI [negative emotionality & soothability - merged]	Parent-report
Dickson et al. (2019)	Sweden	School	1409	13.4 (.5)	47.8	Longitudinal (2 yrs.)	Items developed by Persson et al. (2004) [derisive parenting]	Child-report	Items developed by Roth et al. (2019) [dysregulation]	Child-report
Duncombe et al. (2012)	Australia	At-Risk (School)	373	7.0 (1.1)	26.0	Cross-sectional	APQ [parental monitoring and supervision (omitted), positive parenting (omitted), involvement (omitted), inconsistent discipline, corporal punishment]	Parent-report	ERC [lability/negativity]	Parent-report
Gómez-Ortiz et al. (2019)	Spain	School	2060	14.3 (1.3)	47.9	Cross-sectional	ESFM [affection/communication, behavioral control, psychological control, promotion of autonomy, humor, filial disclosure]	Child-report	ERQ [emotion suppression]	Child-report

**Table 1** (continued)

Authors	Country	Sample	N	Age	Sex	Design	Parenting		Emotion Dysregulation	
							Measure [Scales]	Source	Measure [Scales]	Source
Gülseven et al. (2018)	Turkey	School	340	M (SD) 6.9 (.3)	F% 49.7	Longitudinal (3 yrs.)	CRQ [warmth & inductive reasoning – merged to responsive parenting; punishment & obedience-demanding behavior – merged to harsh parenting]	Parent-report	ERC [ability/ negativity]	Parent-report
Ha & Jue (2018)	South Korea	School	316	15.3 (.9)	79.7	Cross-sectional	DAPCS [separation anxious & achievement-oriented psychological control – merged to psychological control]	Child-report	CSMS/CAMS [inhibition, dysregulated-expression (omitted)]	Child-report
Jaffe et al. (2009)	Australia	School	293	F: 10.8 (.9) M: 10.8 (.9)	53.9	Cross-sectional	PBI [care, overprotection]	Child-report	ERQ-CA [expressive suppression]	Child-report
Li et al. (2018)	China	n/a	150	8.5 (1.7)	42.0	Cross-sectional	PPSC/ MPSC [psychological control]; Behavioral observation during interaction task	Child-report, Researcher-report	CSMS/ CAMS/ CWMS [dysregulated-expression]	Child-report
Liu (2020)	China	Left-behind children	404	F: 13.8 (1.1) M: 13.8 (1.1)	53.0	Cross-sectional	EMBU (revised) [warmth and understanding – renamed to authoritative parenting; punishment, over intervention, overprotection – merged to authoritarian parenting; favoring subject, rejection and denying – merged to permissive parenting]	Child-report	CERQ-C [self-blame (omitted), rumination, catastrophizing, other-blame – merged to negative cognitive emotion regulation]	Child-report
Llorca et al. (2017)	Spain	School (S) & Offenders (O)	440	S: 16.4 (1.3) O: 16.2 (1.5)	S: 34.1 O: 32.7	Cross-sectional	CRPBI (support, psychological control, negligence, permissiveness)	Child-report	IE [emotional instability]	Child-report
Luebke et al. (2014)	USA	School	214	11.9 (.9)	59.0	Cross-sectional	PCS-YSR [psychological control]	Child-report	CSMS/ CAMS/ CWMS [inhibition, dysregulated-expression – merged across emotions]	Child-report



Table 1 (continued)

Authors	Country	Sample	N	Age	Sex	Design	Parenting		Emotion Dysregulation		
							Measure [Scales]	Source	Measure [Scales]	Source	
McEwen & Flouri (2009)	UK	School	203	M (SD) 14.0 (1.9)	F% 61.6	Cross-Sectional	PBI [care – renamed to warmth, over-protection]; Items developed by Shek (2005) [parental knowledge, parental monitoring, parental discipline, psychological control]	Child-report	Child-report	DERs [nonacceptance of emotional responses (abbr. nonacceptance), difficulties engaging in goal-directed behavior (abbr. goal), impulse control difficulties (abbr. impulse), lack of emotional awareness (abbr. impulse), limited access to emotion regulation strategies (abbr. access), lack of emotional clarity (abbr. clarity) – merged to emotional dysregulation]	Child-report
Morelen et al. (2016)	USA	Community	64	9.5 (1.0)	59.4	Cross-sectional	CCNES [punitive reactions, minimizing distress reactions – merged to un-supportive emotion parenting; emotion focused reactions, expressive encouragement, problem focused reactions – merged to supportive emotion parenting]	Parent-report	Parent-report	ERC [lability/negativity]; CSMS/ CAMS/ ulated-expression – merged across emotions]	Parent-report, Child-report
Otterpohl & Wild (2015)	Germany	School	1100	11.8 (7)	45.0	Longitudinal (2 yrs.)	GPBS [responsiveness, psychological control]	Child-report, Parent-report	Child-report, Parent-report	FEEL-KJ [resigning, withdrawing, withdrawal, self-defeat, rumination – merged to maladaptive regulation strategies]	Parent-report, Child-report
Raval et al. (2018)	India	School	450	n/a (Range 14–17)	45.5	Cross-sectional	PAQ-R [authoritarian parenting] (amended) [emotion & problem-focused behavior – merged to supportive; punitive & minimizing reactions – merged to unsupportive]	Parent-report	Parent-report	CSMS/ CAMS [dysregulated-expression]	Child-report

**Table 1** (continued)

Authors	Country	Sample	N	Age M (SD)	Sex F%	Design	Parenting		Emotion Dysregulation	
							Measure [Scales]	Source	Measure [Scales]	Source
Rueh et al. (2017)	Germany	School	923	10.8 (.6)	46.7	Longitudinal (2 yrs.)	GPBS [autonomy support, psychological control]	Child-report, Parent-report	FEEL-KJ [resign, venting, withdrawal, self-defeat, rumination – merged to maladaptive regulation strategies]	Child-report, Parent-report
Safdar & Khan (2019)	Pakistan	School	350	15.8 (1.4)	50.3	Cross-sectional	DAPCS [dependency-oriented & achievement-oriented psychological control]	Child-report	DERS [non-acceptance, goal, impulse, awareness, access, clarity - merged to emotional dysregulation]	Child-report
Sarıtaş et al. (2013)	Turkey	School	365	15.6 (.5)	57.0	Cross-sectional	EMBU (short [emotional warmth, rejection, overprotection])	Child-report, Parent-report	DERS [non-acceptance, goal, impulse, awareness, access, clarity - merged to emotional dysregulation]	Child-report, Parent-report
Shaw & Starr (2019)	USA	Community	218	15.5 (1.1)	55.0	Cross-sectional	PSDQ [authoritarian parenting]	Parent-report	DERS [non-acceptance, goal, impulse, awareness, access, clarity - merged to emotional dysregulation]	Child-report
van Lissa et al. (2019)	Netherlands	School	480	15.0 (.5)	43.1	Longitudinal (4 yrs.)	NR1 [support]; Items developed by Stattin & Kerr (2000) [behavior control]; Items developed by Barber & Harmon (2002) [psychological control]	Child-report	DERS [non-acceptance, goal, impulse, awareness (omitted), access, clarity - merged to emotional dysregulation (reverse coded)]	Child-report
Walton & Flouri (2009)	UK	School	203	14.0 (1.9)	61.6	Cross-sectional	PBI [care – renamed to warmth]; Items developed by Shek (2005) [parental knowledge, monitoring, & discipline, psychological control]	Child-report	DERS [non-acceptance, goal, impulse, awareness, access, clarity - merged to emotional dysregulation]	Child-report
Wang & Qi (2017)	China	School	828	13.6 (n/a)	42.4	Cross-sectional	Items developed by Simons et al. (1991) [harsh parenting]	Parent-report	DSI [emotional reactivity]	Child-report
Wang & Wang (2018)	China	School	864	13.6 (.95)	42.5	Cross-sectional	Items developed by Simons et al. (1991) [harsh parenting]	Parent-report	DSI [emotional reactivity]	Child-report

Table 1 (continued)

Authors	Country	Sample	N	Age M (SD)	Sex F%	Design	Parenting		Emotion Dysregulation	
							Measure [Scales]	Source	Measure [Scales]	Source
Weis et al. (2016)	Germany (G) & Chile (C)	School	G: 76 C: 167	G: 10.2 (.4) C: 10.2 (.4)	G: 59.2 C: 66.5	Cross-sectional	PPQ [restrictive control]	Parent-report	SSKJ 3–8 [anger-oriented strategies]	Child-report
Yan et al. (2021)	China	Community	2237	9.4 (1.8)	48.1	Cross-sectional	MAPS [proactive parenting, positive reinforcement, warmth, supportiveness, hostility, lax control, physical control – merged to parenting quality]	Parent-report	ERC [lability/negativity]	Parent-report
Yu et al. (2013)	South Korea	School	525	15.3 (.5)	29.9	Cross-sectional	PARQ (short) [warmth/affection, hostility/aggression, indifference/neglect, undifferentiated rejection – merged to parenting behavior]	Child-report	DERS [nonacceptance, goal, impulse, awareness (omitted), access, clarity – merged to emotional dysregulation]	Child-report

Merging/omission refers to procedures for main analysis; child-report refers to children and adolescents; F female; M male; *n/a* not available in article; *APQ* Alabama Parenting Questionnaire (Frick, 1991); *CCNES* Coping with Children's Negative Emotions Scale (Fabes et al., 1990); *CCTI* Colorado Child Temperament Inventory (Buss & Plomin, 1984); *CERQ-C* Cognitive Emotion Regulation Questionnaire-Chinese Version (Zhu et al., 2007); *CRPBI* Child Reports of Parental Behavior Inventory (Sampier et al., 2006); *CRQ* Child Rearing Questionnaire (Patterson & Sanson, 1999); *CSMS/CAMS* Children's Sadness and Anger Management Scale (Zeman et al., 2001); *CWMS* Children's Worry Management Scale (Zeman et al., 2010); *DAPCS* Domain-specific Assessment of Psychological Control Scale (Soenens et al., 2010); *DERS* Difficulties in Emotion Regulation Scale (Grazt & Roemer, 2004); *DSI* Differentiation of Self Inventory (Skowron & Friedlander, 1998); *EMA* Ecological momentary assessment; *EMBU* Egna Minnen av Barndoms Uppfostran (Arrindell et al., 1999; Yue, 1993); *ERC* Emotion Regulation Checklist (Shields & Cicchetti, 1997); *ERQ* Emotion Regulation Questionnaire (Gross & John, 2003); *ERQ-CA* Emotion Regulation Questionnaire for Children and Adolescents (Gullone & Taffe, 2012); *ESFM* Educational Style of Fathers and Mothers of Adolescents (Oliva et al., 2007); *FEEL-KJ* Questionnaire for the measurement of emotion regulation in children and adolescents (Grob & Smolenski, 2009); *GPBS* German Parental Behavior Scale (Wild, 1999); *IE* Emotional Instability Scale (del Barrio et al., 2001); *MAPS* Multidimensional Assessment of Parenting Scale (Parent & Forehand, 2017); *NRI* Network of Relationships Inventory (Furman & Buhrmester, 1985); *PARQ* Parental Acceptance-Rejection Questionnaire (Rohner, 1984); *PAQ-R* Parental Authority Questionnaire-Revised (Reitman et al., 2002); *PBI* Parental Bonding Instrument (Parker et al., 1979); *PCS-YSR* Psychological Control Scale-Youth Self-report (Barber, 1996); *PPS* Perceptions of Parents Scale (Grolnick et al., 1991); *PSDQ* Parenting Styles and Dimension Questionnaire (Robinson et al., 2001); *PPQ* Parenting Practice Questionnaire (Robinson et al., 1995); *SSKJ* 3–8 Questionnaire for the Measurement of Stress and Coping in Children and Adolescents (Lohaus et al., 2006)

(2020) reports that perceived authoritative parenting had a direct negative effect on concurrent maladaptive cognitive emotion regulation strategies (e.g., rumination, catastrophizing). In line with these findings, Coplan et al. (2009) reported a negative correlation between concurrently assessed mother-reported authoritative parenting and emotion dysregulation in childhood.

### Supportiveness

Raval et al. (2018) found no concurrent correlation between mother-reported supportive parenting behaviors and adolescent-reported dysregulated emotion expression; however, unsupportive parenting behaviors had a direct positive effect on adolescents dysregulated emotion expression. The correlations reported by Morelen et al. (2016) indicate no association between mother-reported supportive emotion parenting and children's emotional lability nor dysregulated expression. Furthermore, unsupportive emotion parenting was positively correlated with lability, but not with dysregulated expression (Morelen et al., 2016). van Lissa et al. (2019) found that adolescent-reported paternal support did not predict emotion dysregulation one year later, consequently over a four-year period. Regarding maternal support, gender differences emerged, so that girls-reported maternal support consequently predicted emotion dysregulation one year later (negatively), whilst no association existed for boys-reported maternal support (van Lissa et al., 2019). When examining parent-reported support, neither maternal nor paternal support predicted adolescents' emotion dysregulation one year later. Byrd et al. (2021) found that perceived supportive parental responses had a negative concurrent and longitudinal effect on the emotion dysregulation of clinically inferred adolescents. Conversely, parent-reported and clinicians' observations of supportive responses had no effect on emotion dysregulation. Also focusing on unsupportive responses (combined adolescent- and parent-report, and clinician observations), Byrd et al. (2021) found these to positively predict concurrent emotion dysregulation, but not emotion dysregulation nine months later. Llorca et al. (2017) found that perceived parental support had a negative effect on concurrent emotional instability for non-offender adolescents but was not significant for offender adolescents.

### Responsiveness

Otterpohl and Wild (2015) found that parental responsiveness did not predict anger dysregulation one year later, neither through parent- nor adolescent-reported assessment; further

examinations also revealed no difference between at-risk and non-risk adolescents. Similarly, Gülseven et al. (2018) found that although maternal responsiveness was negatively correlated with concurrent emotional lability, it did not predict children's emotional lability one year later (mother-report).

### Negative Parenting Dimensions and Styles

Merging several perceived parenting dimensions (including hostility, indifference, rejection, and reverse-coded warmth), Yu et al. (2013) found that generalized negative parenting had a direct positive effect on concurrent emotion dysregulation during adolescence.

### Parental Rejection

Utilizing both self-report and mother-report, Sarıtaş et al. (2013) found that maternal rejection had a direct positive effect on concurrent emotion dysregulation during adolescence. Assessing changes across a three-year time span, Dickson et al. (2019) found that adolescents' perceived negative parental reactions to disclosures (i.e., derision, criticism, and belittlement) was positively correlated with both yearly concurrent and longitudinal anger dysregulation.

### Parental Coercion (Psychological Control)

Li et al. (2018) found that both observed and perceived psychological control had a direct positive effect on children's dysregulated expression. Such findings are also observed during adolescence, with studies reporting concurrent positive associations between perceived parental psychological control and emotion dysregulation (Safdar & Khan, 2019) and emotion inhibition (Ha & Jue, 2018), as well as emotion suppression (Gómez-Ortiz et al., 2019). However, other studies have also found that adolescents perceived parental psychological control had no association with concurrent emotional instability (for both offender and non-offender adolescents, Llorca et al., 2017), emotion inhibition (Luebbe et al., 2014), nor emotion dysregulation one year later, for three consecutive years (van Lissa et al., 2019).

Although, Gómez-Ortiz et al. (2019), Luebbe et al. (2014, with emotion inhibition), and van Lissa et al. (2019) examined associations with both maternal and paternal psychological control and found no differences between these, other associations highlight inconsistencies. For instance, Luebbe et al. (2014) found that maternal psychological control had a direct positive effect on dysregulated-expression, whilst paternal psychological control showed no significant effect. Conversely, McEwen and Flouri (2009) found that perceived paternal psychological control had a direct positive effect on concurrent emotion dysregulation, whilst Walton and Flouri (2009) found no association with maternal psychological control.

Focusing on emotion-specific dysregulation, psychological control has also been examined in relation to anger. Rueth et al. (2017) found that parental psychological control positively predicted maladaptive anger regulation strategies one year later, both for parent- and adolescent-reported assessment. Relying on the same sample, Otterpohl and Wild (2015) found that parental psychological control did not predict maladaptive anger regulation strategies one year later, neither through parent- nor adolescent-reported assessment; further examinations also revealed no difference between at-risk and non-risk adolescents. The difference might be explained by Otterpohl and Wild's (2015) merging of reverse-coded adaptive and maladaptive anger regulation strategies to form a composite of emotion dysregulation. In both Germany and Chile, Weis et al. (2016) found that mother-reported restrictive control (i.e., characterized by punishment and compliance without reasoning) had a direct positive association with anger-oriented emotion regulation strategies in childhood.

### Parental Chaos

Balan et al. (2017) found that perceived inconsistent discipline had a direct positive effect on expressive suppression during early adolescence. Similar results were reported by Duncombe et al. (2012) who found that parent-reported inconsistent discipline had a direct positive effect on the emotional lability of at-risk children.

### Authoritarian Parenting

Coplan et al. (2009) reported a positive correlation between concurrently assessed mother-reported authoritarian parenting and emotion dysregulation in childhood. Similarly, Liu (2020) found that perceived authoritarian parenting of left-behind children in China had a direct positive effect on concurrent maladaptive cognitive emotion regulation strategies. With a community sample, Shaw and Starr (2019) found similar results, namely a direct positive effect from mother-reported authoritarian parenting onto adolescent-reported emotion dysregulation. However, Raval et al. (2018) found no concurrent correlation between mother-reported authoritarian parenting and adolescent-reported dysregulated emotion expression.

### Harsh Parenting

Studies found that self-reported maternal and paternal harsh parenting, as well as spouse-rated harsh parenting had a

direct positive effect on emotional dysregulation during adolescence (Wang & Wang, 2018; Wang & Qi, 2017). Furthermore, Gülseven et al. (2018) found that harsh parenting from mothers showed positive concurrent correlations with children's lability, and was able to positively predict lability one year later.

### Parental Overprotection

Coplan et al. (2009) found no correlation between concurrently assessed mother-reported overprotective parenting and emotion dysregulation in childhood. Further studies demonstrated that perceived parental overprotection did not predict concurrent expressive suppression in late childhood (Jaffe et al., 2009) nor emotion dysregulation during adolescence (McEwen & Flouri, 2009).

### Parental Negligence and Corporal Punishment

Llorca et al. (2017) found that perceived parental negligence had no effect on concurrent emotional instability for offender and non-offender adolescents. Balan et al. (2017) found that perceived corporal punishment had a direct positive effect on expressive suppression during early adolescence. Conversely, Duncombe et al. (2012) found no direct effect from parent-reported corporal punishment onto the emotional lability of at-risk children.

### Parental Permissiveness

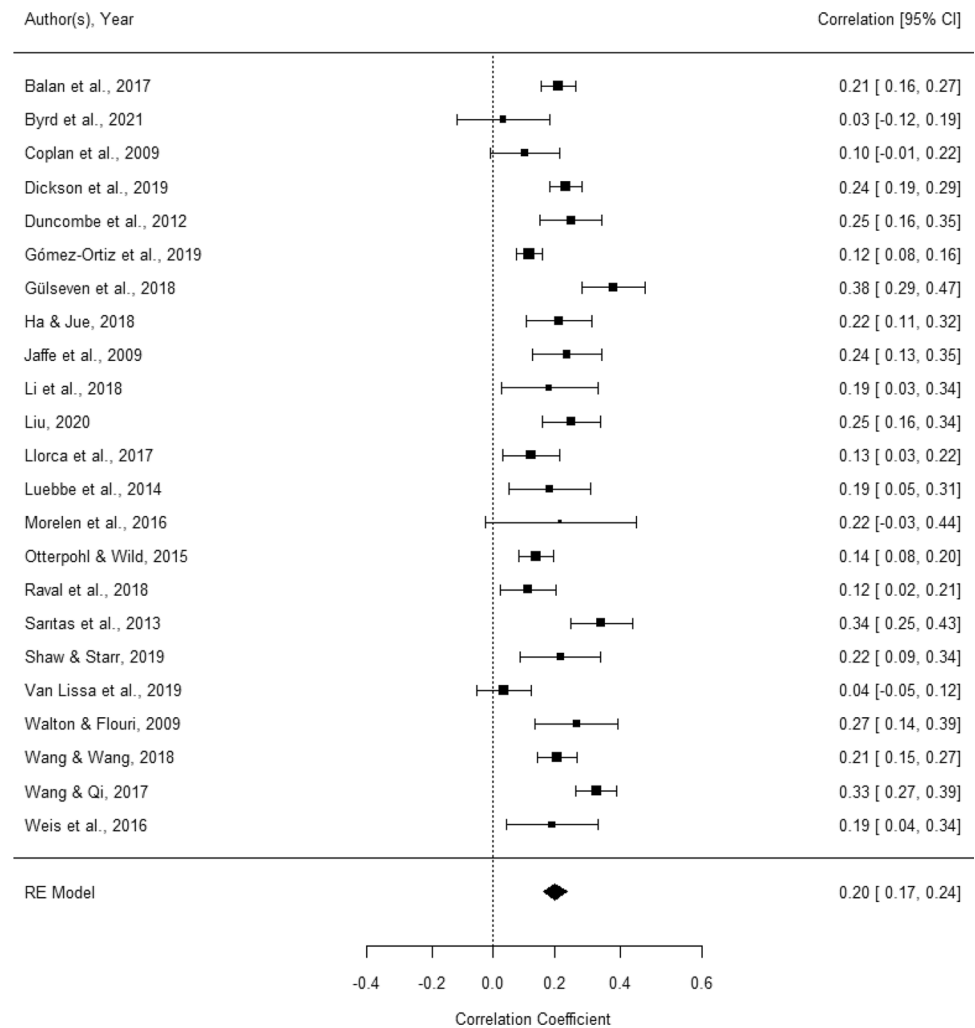
Liu (2020) found that perceived permissive parenting had a direct positive effect on concurrent maladaptive cognitive emotion regulation strategies in left-behind children in China. Furthermore, Llorca et al. (2017) found that perceived permissive parenting had a positive effect on concurrent emotional instability for non-offender adolescents, but was not significant for offender adolescents.

## Meta-Analysis

### General Model

Of the 30 studies in narrative synthesis,  $k = 27$  met the requirements to be included in the meta-analysis. Studies that did not report the parameters required to calculate an effect size (Allen et al., 2016) or used a dependent sample (McEwen & Flouri 2009; Rueth et al., 2017) were excluded. For dependent samples, the study with the larger  $N$  (Otterpohl & Wild, 2015, over Rueth et al., 2017) or the more recent study (Walton & Flouri, 2009, over McEwen & Flouri, 2009) were chosen. If different samples were described in a study, those with the larger

**Fig. 2** Forest plot general model



*N* were chosen (Llorca et al., 2017; Weis et al., 2016). Influence diagnostics were carried out to reduce heterogeneity, which resulted in three studies being excluded (Safdar & Khan, 2019; Yan et al., 2021; Yu et al., 2013). As presented in the forest plot (Fig. 2), *k* = 27 studies revealed a small combined effect of  $\Delta = .20$  ( $p < .001$ ; 95% CI [17, .24]) between parenting (negative and positive) and emotion dysregulation. However, results revealed a high heterogeneity ( $Q = 91.38$ ,  $p < .001$ ,  $I^2 = 74.8\%$ ; Higgins & Thompson, 2002; Higgins et al. 2003). Hence, the results need to be considered provisionally and interpreted with caution.

**Moderators**

The results of the subgroup calculations are presented in Table 2. The analyses revealed that sample type, parenting report, emotion dysregulation report, age, and design were not significant moderators. However, three

significant subgroup differences emerged, namely for continent ( $Q_{contrast} = 15.53$ ,  $p_{contrast} = .004$ ), for sample power ( $Q_{contrast} = 28.28$ ,  $p_{contrast} < .001$ ), and the categorization of the quality assessment ( $Q_{contrast} = 14.04$ ,  $p_{contrast} = .001$ ). Moreover, in comparison to the general model the subgroup analysis of the sample power revealed a decreased heterogeneity. With the exception of Europe, heterogeneity also decreased for the continent subgroups. Likewise, heterogeneity only increased in studies which were rated as ‘good’ in quality assessment.

**Publication Bias**

Visual analysis of the funnel plot, Egger’s Regression Test ( $z = 0.06$ ;  $p = 0.95$ ), and Rank Correlation Test ( $\tau = -0.06$ ;  $p = 0.71$ ) provided no evidence of publication bias (see Fig. 3). The Fail-Safe *N* of 3720 also indicates that there was no publication bias (Rosenthal, 1979).

**Table 2** Subgroup analysis of the general model

	k	N	$\Delta$	95% CI	Q	$\tau^2$	I <sup>2</sup>	Contrast Q	Contrast p
Total	27	15,740	.26***	.17 to .34	619.35***	.05	95.80%		
Infl. Removed <sup>1</sup>	24	12,628	.20***	.17 to .24	91.38***	.02	74.80%		
Continent								15.53**	.004
North America	5	943	.15*	.05 to .22	4.07	.00	1.60%		
Europe	8	7135	.18**	.10 to .26	45.98***	.01	84.80%		
Australia	2	666	.25*	.20 to .30	0.01	.00	0.00%		
Asia	8	3717	.24***	.18 to .30	18.44*	.00	62.00%		
South America <sup>2</sup>	1	167	.193*	.04 to .34	–	–	–		
Sample power <sup>3</sup>								28.28***	< .001
good	13	7938	.25***	.21 to .28	22.77*	.00	47.30%		
sufficient	4	3168	.12*	.03 to .21	5.47	.00	45.20%		
bad	7	1522	.12**	.05 to .18	6.63	.00	9.50%		
Sample type								0.15	.697
Clinical/At Risk	4	1379	.18*	.02 to .34	9.04*	.01	66.80%		
Community/School	20	11,249	.20***	.16 to .24	82.31***	.01	76.90%		
Parenting report								1.00	.607
Parent	9	3589	.22***	.16 to .28	22.05**	.00	63.70%		
Children	11	7262	.20***	.14 to .25	52.14***	.00	80.80%		
Multiple	4	1777	.17*	.01 to .32	7.84	.01	61.70%		
Dysregulation report								0.41	.814
Parent	4	1062	.22*	.09 to .34	5.14	.00	41.60%		
Children	18	10,155	.19***	.15 to .24	78.04***	.01	78.20%		
Multiple	2	1411	.23	-.68 to .86	6.69**	.01	85.10%		
Age								0.62	.432
Adolescence	17	10,956	.20***	.15 to .24	83.59***	.01	80.90%		
Middle/late childhood	7	1672	.22***	.16 to .27	5.68	.00	0%		
Design								0.21	.649
cross-section	18	8826	.21***	.17 to .24	63.12***	.00	73.10%		
longitudinal	6	3802	.18*	.06 to .30	28.24***	.01	82.30%		
Quality <sup>4</sup>								14.04	.001
Good	6	3802	.18*	.06 to .30	28.24***	.01	82.3%		
Fair	16	6326	.22***	.19 to .26	24.03	.00	37.6%		
Poor	2	2500	.10	-.30 to .46	1.68	.00	40.6%		

<sup>1</sup>Influencers removed: Safdar & Khan (2019), Yan et al. (2021), and Yu et al. (2013), <sup>2</sup>if k = 1 the calculation is not possible, <sup>3</sup>Sample power calculated with G\*Power, <sup>4</sup>Based on quality assessment, \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

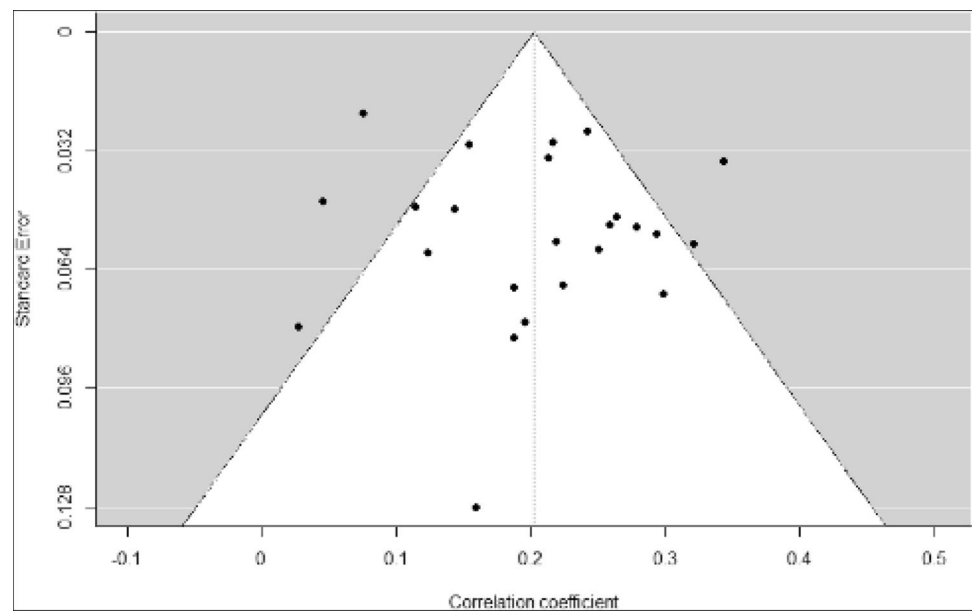
## Examining Positive and Negative Parenting

Figure 4 shows the forest plot of the  $k = 23$  studies that examined the relationship between negative parenting and emotion dysregulation with a small combined effect of  $\Delta = .20$  ( $p < .001$ ; 95% CI [.17, .24]). Even when focusing only on negative parenting dimensions/styles, the heterogeneity remained high ( $Q = 89.43$ ,  $p < .001$ ,  $I^2 = 75.40\%$ , Higgins & Thompson, 2002; Higgins et al. 2003). Figure 5 presents the forest plot of the  $k = 14$  studies that examined the relationship between positive parenting and emotion dysregulation. Likewise, a small combined effect of  $\Delta = -.17$  ( $p < .001$ ; 95% CI [-.22,

-.12]) and a high heterogeneity ( $Q = 58.49$ ,  $p < .001$ ,  $I^2 = 77.80\%$ , Higgins & Thompson, 2002; Higgins et al. 2003) were detected.

## Publication Bias

For both models, analysis to investigate possible publication bias were conducted (see Figs. 6 and 7). Both, calculations and visual inspections revealed symmetric distribution indicating there is no publication bias (model negative parenting Egger's Regression Test:  $z = 0.03$ ;  $p = 0.98$  and Rank Correlation Test:  $\tau = -0.04$ ;  $p = 0.84$ ; model positive parenting

**Fig. 3** Funnel plot general model

Egger's Regression Test:  $z = -0.30$ ;  $p = 0.77$  and Rank Correlation Test:  $\tau = -0.14$ ;  $p = 0.52$ ).

## Discussion

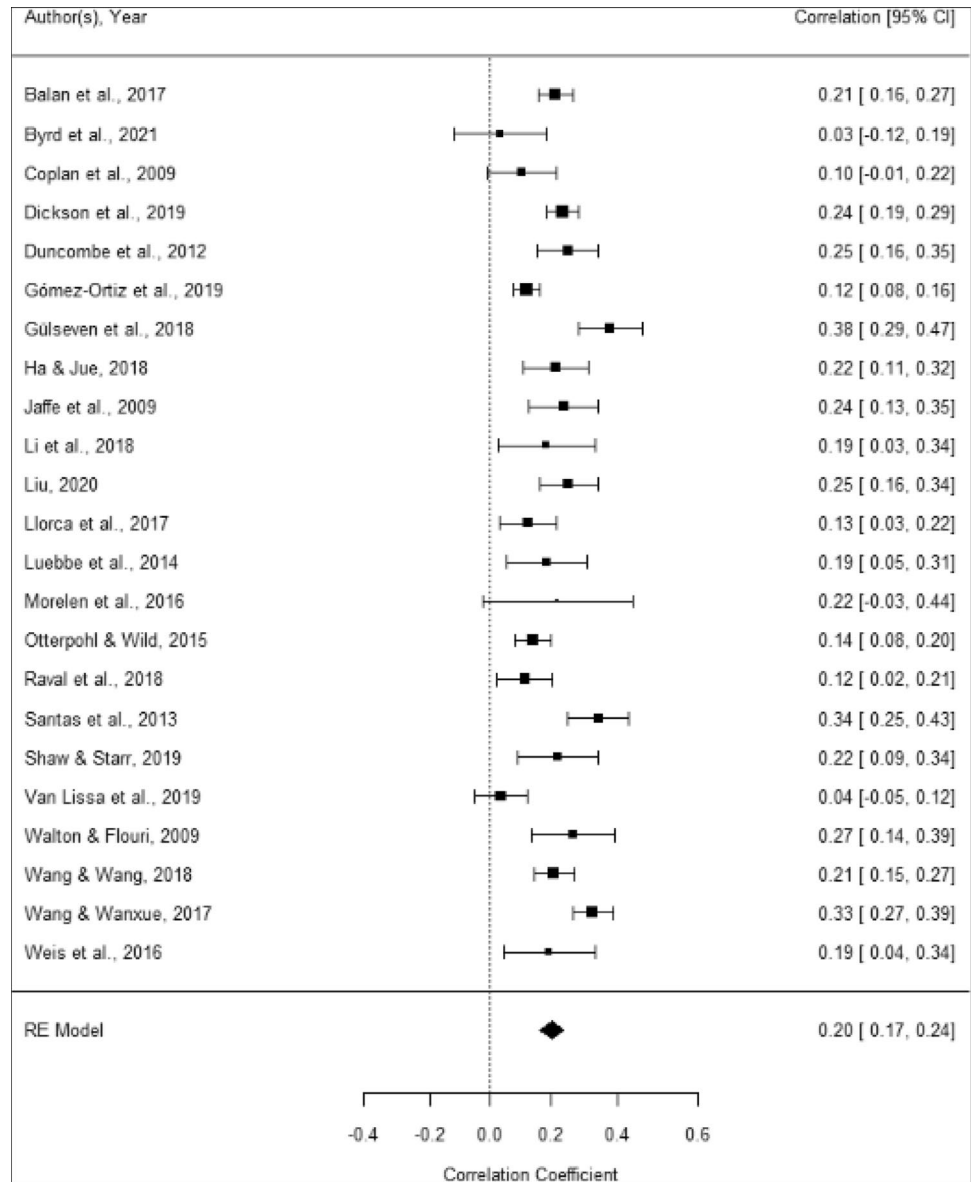
Emotion dysregulation is a transdiagnostic factor, with maladaptive emotion regulation strategies showing an association with both internalizing and externalizing behavior problems (Aldao et al., 2010; Compas et al., 2017). Despite this, only a few systematic reviews and meta-analyses have examined potential antecedents, that can in turn guide prevention and intervention approaches. Given the significant role of the family, we set out to examine the association between parenting dimensions and styles and emotion dysregulation in childhood and adolescence. Overall, our narrative synthesis and meta-analysis indicate that an association exists. However, differences can be observed when examining the various types of parenting dimensions/styles, and when considering potential mediators that were reported in the articles, such as culture, gender, age, and informant.

### Types of Parenting Dimensions/Styles

The meta-analysis demonstrates that a positive association exists between negative parenting dimensions/styles and emotion dysregulation, and a negative association exists between positive parenting dimensions/styles and emotion dysregulation. The narrative synthesis additionally highlights that inconsistencies exist within each type. Generally, parenting dimensions/styles that have been the subject of more studies revealed greater inconsistencies than studies which were investigated less. For instance, authoritative parenting,

parental rejection, chaos, and permissiveness, uniformly indicate an association with emotion dysregulation, yet are supported by only two articles each. Hence, we caution the interpretability of these associations until further research is done. Parental structure (behavioral control), which was included in five articles, revealed a general tendency not to be associated with emotion dysregulation. Structure focuses on the reduction of inappropriate or risky behavior, and thus may just be less related with emotions and the regulation thereof. Another possible reason for the absence of a clear association is the value and outcome it has in different developmental phases. Providing young children with structure may be beneficial for their adjustment, whilst during adolescence such control may be less welcomed (van Lissa et al., 2019). Adolescence marks a time in which expectations of autonomy increase, parental monitoring changes, and the relinquishment of control may actually be beneficial for the development of emotion regulation (Lionetti et al., 2019; van Lissa et al., 2019). Another dimension that appears to have no association with emotion dysregulation is parental overprotection. Looking at studies which examined parental overprotection and emotion dysregulation in adulthood provides inconsistent findings, with Tani et al. (2018) reporting mainly no association and Bahtiyar and Gençöz (2021) finding a positive association. Parental warmth, autonomy support, supportiveness, coercion (psychological control), and authoritarian parenting have each been subject to a minimum of four articles, yet display inconsistencies, i.e., studies report both an association and no association with emotion dysregulation. In the following sections we describe moderators that potentially influence the association, as well as draw attention to limitations in the review and the articles that may account for inconsistencies.



**Fig. 4** Forest plot model negative parenting

## Cultural Differences

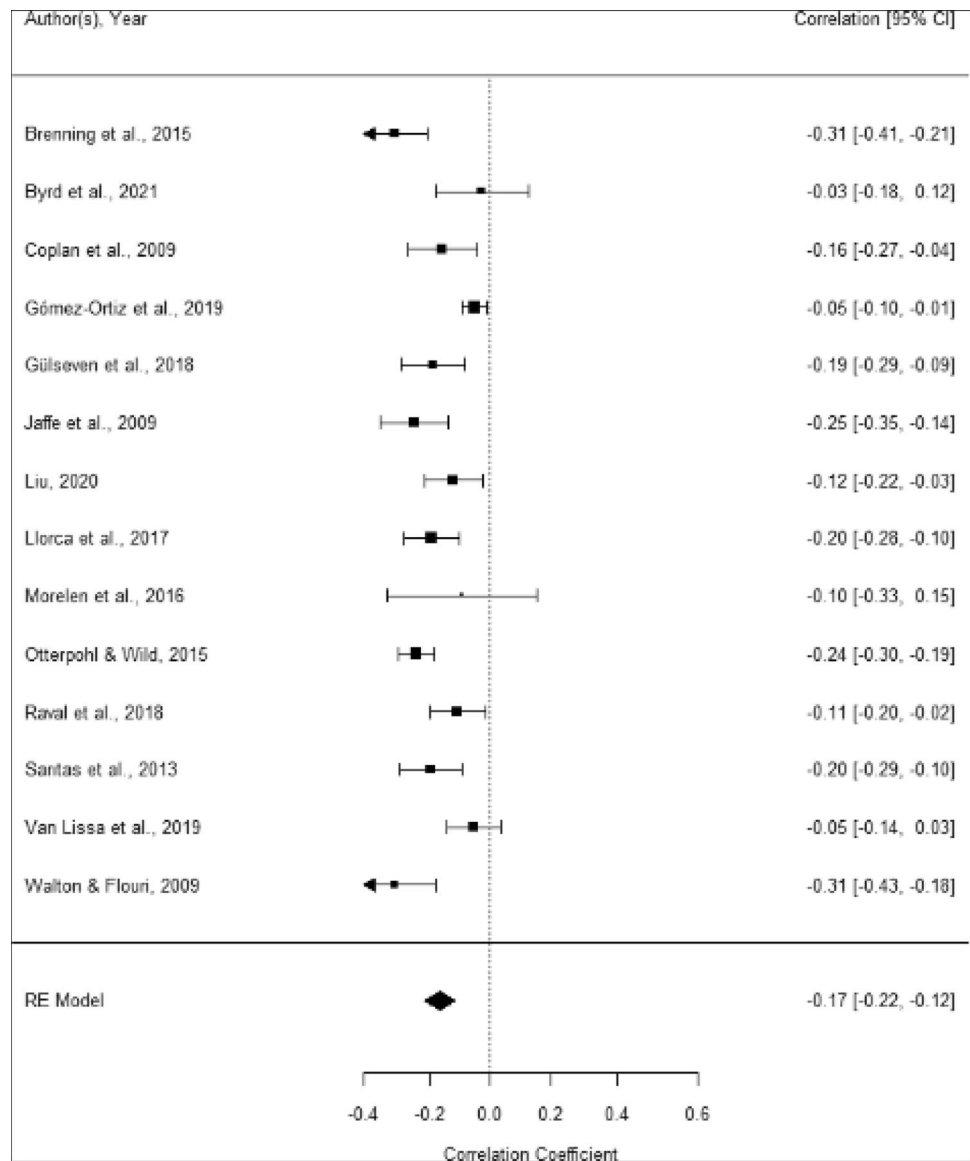
Harkness and Super (2002) proposed a theoretical framework, which stipulates that parenting mediates the influence of culture on children's development. Culture has often been brought forth as an important factor when considering the association between parenting and child/adolescent outcomes, as well as implications for social policy implications (Bornstein, 2012). Of the included studies only one examined cross-cultural differences, namely between Germany and Chile, with the finding that no differences existed (Weis et al., 2016). Nevertheless, six of the studies that were completed in Asia commented on possible cultural differences (Gülseven et al., 2018; Ha & Jue, 2018; Li et al., 2018; Raval et al., 2018; Wang & Wang, 2018; Yan et al., 2021). The authors of the studies reason that more studies in Eastern cultures are needed, as there has been mixed

consensus as to whether results of studies conducted in Western cultures are transferable. The meta-analysis indicates that a positive association between parenting and emotion dysregulation exists in all examined continents, however a stronger association is found in Asian countries. This aligns with meta-analysis by Pinquart and Kauser (2018), who found more similarities than differences when examining the associations of parenting styles with internalizing and externalizing problems between ethnic groups within Western countries, different regions of the globe, and collectivistic/individualistic countries.

## Gender-Moderations and Age-Related Changes

The few studies that examined child gender moderation, found either no effect thereof (e.g., Gülseven et al., 2018; Otterpohl & Wild, 2015; Rueth et al., 2017; Sarıtaş et al. 2013), or

**Fig. 5** Forest plot model positive parenting



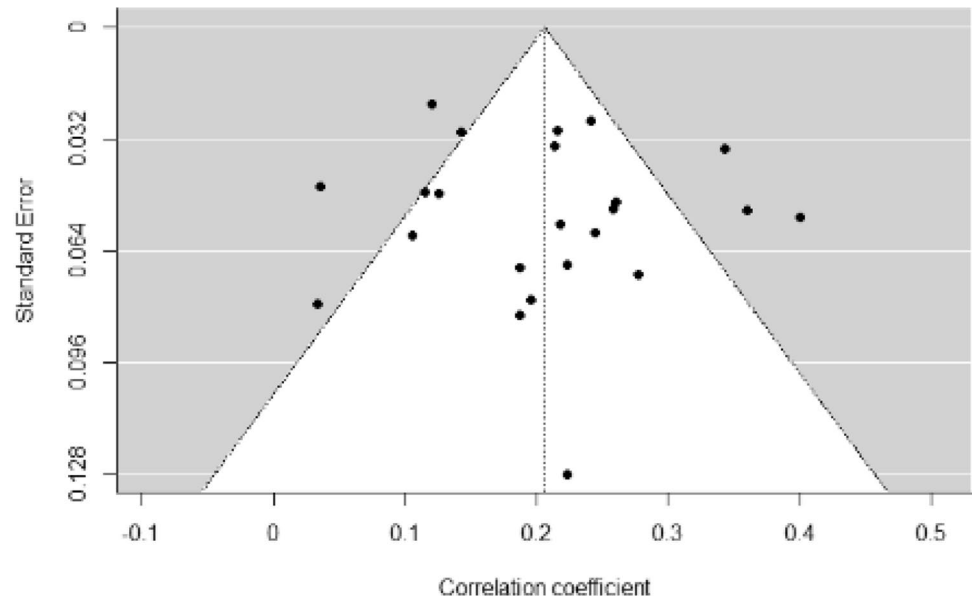
that gender inconsistently moderated associations (e.g., van Lissa et al., 2019; Wang & Wang, 2018). This indicates that an examination of the child’s gender alone does not reveal many differences; however, future studies could examine the gender of the parents, as well as the gender combination of child and parent, which have been found in previous studies to be important when considering parenting and development (Hoeve et al., 2011; Russell & Saebel, 1997). Considering the changing nature of the relationship between parents and children as they age, as well as general development trends in emotion regulation, we expected to find age-related changes in the examined association. Only Brenning et al. (2015) examined whether the associations between parenting and emotion dysregulation differed between participants aged 9 to 11 years and those aged 12 to 14 years; yet found no difference. Furthermore, the meta-analysis revealed no significant

differences in the subgroup analysis that compared associations in children and adolescents, and cross-sectional and longitudinal studies. This might be due to the heterogeneity of the studies included in the meta-analysis, or the method with which studies were classified into the groups. However, it is also noteworthy, that only a few studies examined the association in childhood, with more studies focusing on adolescence.

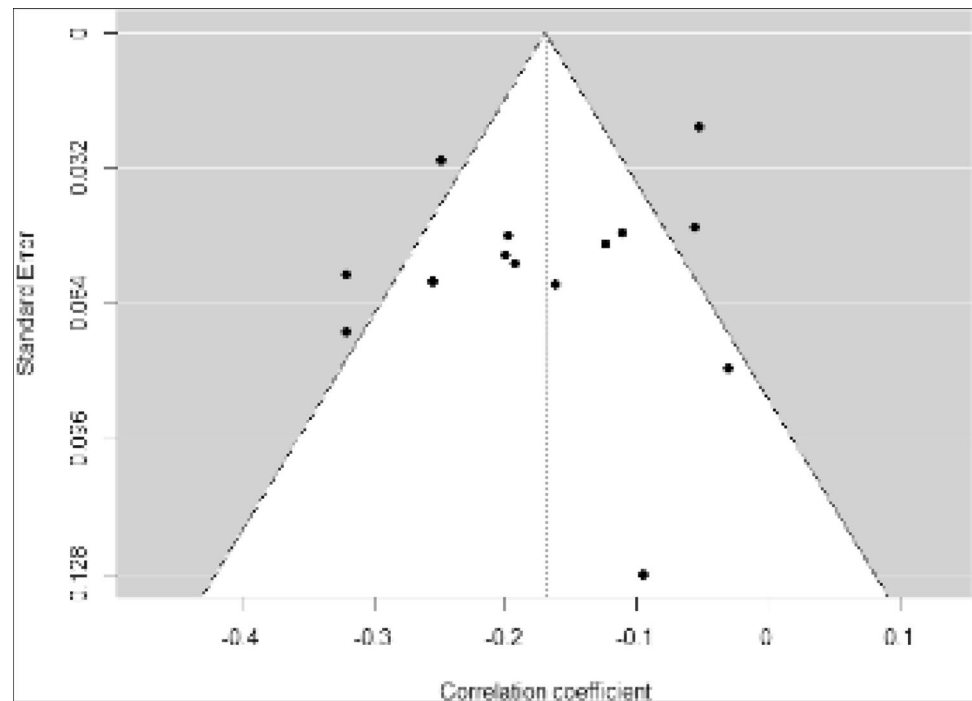
**Importance of Source**

Recent reviews and meta-analyses have indicated that children/adolescents perceive maternal and paternal parenting differently (Dou et al., 2020; Yaffe, 2020), and that these have differential outcomes for prosocial and aggressive behaviors (Kawabata et al., 2011; van der Storm et al., 2021). Included studies which separately examined both maternal

**Fig. 6** Funnel plot model negative parenting



**Fig. 7** Funnel plot model positive parenting



and paternal parenting indicate that there are both similarities (Gómez-Ortiz et al., 2019; Luebke et al., 2014; Wang & Wang, 2018) and differences (Luebke et al., 2014; McEwen & Flouri, 2009; van Lissa et al., 2019; Walton & Flouri, 2009) in the association with emotion dysregulation. However, the findings need to be interpreted with caution due to the nature of assessment and data analyses in the studies. Firstly, four studies which assessed both maternal and paternal parenting merged these prior to the main analyses (Li et al., 2018; Liu, 2020; Wang et al., 2018; Yu et al., 2013),

which may have been done due to a lack of differences. Secondly, for the majority of studies which utilized parent-reported parenting, it was explicitly mothers who completed the assessment or a larger proportion of mothers, when either parent could complete the assessment. This also contrasts with studies utilizing child-reported parenting, in which the majority of assessments focused on both parents simultaneously. This methodological aspect may in turn influence the comparison of parent- and child-reported parenting. Nonetheless, the meta-analysis revealed no significant differences

in the association when comparing parent- and child-reported parenting and emotion dysregulation. Due to the high heterogeneity, aforementioned differences presented in the narrative analysis may not be clearly stated in meta-analysis. Similarly important is the source for emotion dysregulation; the majority of studies relied on self-reported emotion dysregulation, with only two studies utilizing both parent- and child-reports (Morelen et al., 2016; Otterpohl & Wild, 2015; Rueth et al., 2017) and four studies with a younger sample of children utilizing only parent-reports (Coplan et al., 2009; Duncombe et al. 2012, Gülseven et al., 2018; Yan et al., 2021). It is important to consider that self-reported emotion dysregulation requires a certain amount of introspection, and that not all forms of emotion dysregulation (e.g., suppression) may be observable for parents.

### Limitations and Future Directions

In the narrative synthesis we only focused on the effect parenting dimensions had onto emotion dysregulation (in line with our theoretical argumentation); however, addressing the association, it is worthwhile to note that one study conceptualized emotion dysregulation as the independent variable and parenting as the dependent variable (see Coplan et al., 2009) and others included cross lagged models in which emotion dysregulation also had an effect on parenting (see Brenning et al., 2015; Otterpohl & Wild, 2015). Although theories often place parenting dimensions and styles as predictors of emotion socialization practices and emotion (dys) regulation, there is also an acknowledgement that the resulting social-emotional competence and behaviors of children will in turn influence parental goals, beliefs, values, and parenting styles (see Eisenberg, 2020). To better understand this cyclical interplay and provide insights for interventions, it is important to conduct longitudinal studies that consider the development across early childhood, middle childhood, and adolescence. Furthermore, studies have indicated that a strict differentiation of dimensions and styles does not capture the complexity of parenting, and that examining their interplay reveals different associations with adolescent outcomes (Calders et al., 2020). Hence, future studies could consider person-centered analysis, in which the parenting dimensions/styles are combined.

An aim of the review was to highlight the role parenting dimensions and styles for children's and adolescent's emotion dysregulation; however, the distinction with general parenting practices and emotion socialization practices can be difficult due to the intertwined nature of the constructs. Eisenberg et al. (1998) point out that parenting styles and socialization of emotions are related, but that there is a clear difference which needs to be disentangled to understand the effects of parenting on child development. Based on the work of Darling and Steinberg (1993), they also note that

parental goals and values drive both parenting styles and parenting practices, which are likely to interact to influence children's social and emotional competence. Authors use different terminology to refer to parenting practices, dimensions, and styles, which has likely influenced the selection of articles for the review; in an attempt to minimize errors, we looked both at the theoretical framing and the utilized assessment tools (items) for parenting. However, some articles merged different forms of parenting together, or used one to infer the other (e.g., responses to emotional situations provide an indication of parenting style). Although Morris et al. (2007) describe separate mechanisms for parenting to influence emotion regulation, it could also be that parenting emotion socialization mediates the association between parenting dimensions/styles and emotion dysregulation (e.g., Godleski et al., 2020).

Cole (2014) highlights the importance of research distinguishing between specific emotions (i.e., anger, fear, sadness), noting that each serves a distinct adaptive function, bringing about different reactions and consequences in social settings, and may require different regulation strategies. Furthermore, Morris et al. (2007) note that parents' responses and own emotion regulation may differ with different emotions, and thus hint at a different emotion socialization process. Although a few of the included studies have specifically focused on anger (Dickson et al., 2019; Otterpohl & Wild, 2015; Rueth et al., 2017; Weis et al., 2016) and sadness dysregulation (Brenning et al., 2015), others that assessed the dysregulation of different emotions merged these prior to the main analyses (Ha & Jue, 2018; Li et al., 2018; Luebbe et al., 2014, Morelen et al., 2016; Raval et al., 2018). Luebbe et al. (2014) notes that composite scores were used to reduce the data for analyses, increase measurement reliability, and because no evidence suggests that psychological control is differentially related to the dysregulation of specific emotions. However, studies have indicated that developmental trends in the usage of emotion (dys)regulation strategies are emotion-specific during adolescence (Zimmermann & Iwanski, 2014), and thus we urge future research to incorporate and compare specific emotions to further the understanding of emotion development.

Issues concerning the conceptual distinction between emotion regulation and dysregulation may be seen as problematic both for this review and research at large. For the current review we opted to view emotion dysregulation as a separate construct, and thus excluded studies that although referring to dysregulation only assessed emotion regulation. The unclarity in definitions and operationalizations may influence the development of theoretical models and evidence-based practice, which should urgently be attended to. Similarly, questionnaires used for the assessment of emotion dysregulation may need to be revised. For instance,

authors have reported psychometric irregularities with the sub-scale “lack of emotional awareness” in the DERS (van Lissa et al., 2019; Yu et al., 2013). Lastly, for the meta-analysis we bundled all emotion dysregulation constructs into one. However, parenting may have alternate influences on the different types of emotion dysregulation, for instance on those that focus on internal mechanisms (e.g., rumination) versus those that focus on external portrayals (e.g., expressive suppression).

With regard to the meta-analytic calculations some limitations should also be reported. Due to the use of averaged *r*-values in several studies an overestimation or an underestimation could affect the results. Furthermore, the exclusion of certain parenting dimensions/styles, may also have affected the results. Secondly, in the quality assessment most articles were coded as fair; the majority of studies not providing power analysis or sample size justifications. The conducted subgroup analysis of sample power revealed that studies with good power reported stronger effects between parenting and emotion dysregulation than studies with sufficient or bad sample power. This could lead to increased reporting bias, and we thus urge authors to examine and report a priori sample size justifications. Furthermore, only six studies used a longitudinal design, of which four were rated as “good” in the quality assessment.

### Practical Implications

The current systematic review and meta-analysis offers both a narrative and statistical overview of the association between parenting dimensions/styles and emotion dysregulation, which can provide researchers and practitioners with some initial insights for practical implications. Considering that the development of emotion (dys)regulation is dependent on numerous environmental, individual, and biological factors (Beauchaine & Zalewski, 2016; Noroña et al., 2018), with each explaining a small yet significant proportion, we maintain that the findings have practical implications. Firstly, the findings highlight the need to include parent trainings in preventions and interventions targeted at children and adolescents with emotional dysregulation. A first step could involve informing clinical practitioners about the significant association between parenting dimensions/styles and emotion dysregulation. Otterpohl and Wild (2015) note that many families perceive relationships to be temporarily affected by the experience of emotional alienation when children reach puberty, but that parenting does still matter. Hence, even at this age, parenting programs might offer an important starting point to prevent maladjustment. Morelen et al. (2016) suggest that parenting programs may benefit from the inclusion of emotion parenting skills and strategies for supporting children’s emotional experiences. Safdar and

Khan (2019) indicate that programs should be arranged for parents to assist them in developing appropriate disciplinary skills. Emotion-focused parenting interventions for the prevention and treatment of mental health problems in children and adolescents (see Havighurst et al., 2020) could additionally include components targeting parenting dimensions and styles. Secondly, school-based programs may also play an important role, for instance by providing students with a psychoeducation on emotion regulation (Horn et al., 2011). As studies have indicated the intergenerational nature of emotion dysregulation, which is in part mediated by parenting practices, dimensions, and styles (e.g., Shaw & Starr, 2019), future-oriented parent trainings with adolescents, could help break the cycle by reflecting on their own emotion dysregulation and engaging in more appropriate parenting methods when they reach that phase in their lives.

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### Declarations

**Conflict of Interest** The authors declare that there is no conflict of interest.

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