Adolescent Research Review (2024) 9:75–91
https://doi.org/10.1007/s40894-023-00216-w

A Systematic Review of Parental Self-efficacy Among Parents of School-Age Children and Adolescents

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Received: 27 January 2023 / Accepted: 26 April 2023 / Published online: 16 May 2023

Abstract
What function does parental self-efficacy have for parenting behaviors and children's adjustment, and what explains individual variations in parents' self-efficacy? Parental self-efficacy involves parents' beliefs about their influence on their children and this systematic review presents results from 35 empirical studies published between 2003 and 2022 among parents of school-aged children and adolescents. First, the studies in this review show a bi-directional association between parental self-efficacy and positive parenting, and some empirical evidence that parental self-efficacy influences children indirectly, via parenting. The few longitudinal studies examining associations between parental self-efficacy and child behaviors suggest that self-efficacy might emerge as a reaction to children's behaviors. Second, many child, parent, and sociocultural factors were shown to predict parental self-efficacy (e.g., child gender and age, parents' psychological well-being, and socio-economic status), and results suggest that these associations are similar across multiple countries and age groups. Finally, studies reporting on parental self-efficacy at different time points or a correlation between self-efficacy and the child's age suggested that parental self-efficacy decreases over the school-age and adolescent period. This review shows the complex role of parental self-efficacy in associations with parent and child factors, and it also highlight questions to address for future research.

Keywords Parental self-efficacy · School-age children · Adolescents · Systematic literature review · Parent and child variables

Introduction

Over the last decades, there have been substantial increases in the amount of research on parental self-efficacy, defined as parents' perceptions about being able to influence and help their children develop pro-social behaviors and avoid risky behaviors (Bandura, 1977, 1997, 2002). According to social cognitive theory, parental self-efficacy is linked to increased motivation and persistence in the face of challenges (Bandura, 1997). Parents who feel efficacious tend to be better equipped to handle challenging child behaviors (Bandura, 2002; Coleman & Karraker, 1997), which has a positive effect on children's adjustment. Given the growth of research in this area, a systematic review is needed to synthesize the current state of knowledge. This systematic review study presents research on the various roles of parental self-efficacy in the associations with parent and child variables, as well as studies on developmental changes.

Previous Reviews on Parental Self-efficacy

As the most cited and influential review on parental self-efficacy, Jones and Prinz (2005) helped conceptualize it and synthesize research establishing associations between parental self-efficacy and various parent and child variables. The authors highlighted evidence of multiple roles of parental self-efficacy, including a predictor and outcome of parenting practices. Self-efficacy was also linked directly and indirectly, via parenting practices, with child outcomes, and child behaviors also predicted levels of self-efficacy. Finally, contextual factors (e.g., ethnicity, SES, environmental factors) moderated the link between parental self-efficacy and parent and child variables. Two main limitations and gaps

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of knowledge were identified by Jones and Prinz (2005). First, although Bandura (1997) argued that self-efficacy is a dynamic factor and part of a transactional process, most studies up to that point had been using cross-sectional data, which limits the conclusions about complex and longitudinal processes involving parental self-efficacy and its association with parent and child variables. Second, Jones and Prinz (2005) pointed to the lack of studies focusing on the malleability of parental self-efficacy to change over time, which was also a result of few longitudinal studies.

More recently, two systematic reviews have been conducted (Albanese et al., 2019; Fang et al., 2021). The review by Albanese and colleagues (2019) reviewed 115 studies focusing on parental self-efficacy as a predictor of parent and child outcomes, and the authors concluded that higher levels were related to positive outcomes in three domains: the parent–child relationship, parent mental health, and child development (e.g., better behavioral child outcomes). Fang and colleagues (2021) reviewed 30 studies that examined parental self-efficacy as an outcome of parent, child, and socio-contextual factors. The authors concluded that potentially modifiable factors, such as parenting stress and depression were especially strong predictors of self-efficacy.

Limitations with Earlier Reviews and Identified Research Gaps

Although recent reviews (Albanese et al., 2019; Fang et al., 2021) offer an update on the research on parental self-efficacy—including studies published both before and after the review conducted by Jones and Prinz (2005), some gaps of knowledge exist regarding the current state of research. First, the two recent review studies did not examine the various roles of parental self-efficacy in relation to parent, and child variables, which have been proposed in earlier conceptual models (Bandura, 1997; Jones & Prinz, 2005). Specifically, the reviews included studies that conceptualized parental self-efficacy as a predictor only (Albanese et al., 2019) or an outcome only (Fang et al., 2021), and, thus, provided little insight on complex and potential reciprocal associations among parental self-efficacy, parenting, and child behaviors.

Second, earlier reviews have excluded studies that examine similar measures to parental self-efficacy (e.g., parental perceived competence, confidence, esteem, parenting agency), which are often used interchangeably (Vance & Brandon, 2017, see Table 1 for definitions and related concepts). In fact, a variety of theoretical concepts have been used to represent what is ultimately parental self-efficacy (Wittkowski et al., 2017), and studies that use similar terms often use the same scales (Vance & Brandon, 2017). Hence, there are strong arguments for examining studies on parental self-efficacy and similar concepts, as these studies would ultimately explain how parental self-efficacy is related to parenting and child variables.

Third, there is a need for reviews that focus more closely on specific developmental periods. Being a parent can be very different in different developmental periods, as they include a vastly different focus and present unique challenges. These age-related differences might affect parents' beliefs about their influence on their children—as well as the effect of parental self-efficacy on parenting and child outcomes and relevant predictors (Jones & Prinz, 2005). Both recent reviews examined parental self-efficacy broadly, including studies with infants up to adolescents, but did not discuss potential differences between developmental periods. During school-age and adolescence, children undergo major physical, cognitive, and socio-emotional changes, which all have an impact on parents and their beliefs about parenting (Bornstein, 2019). Additionally, most children start school around the age of six, which not only changes the tasks of parenting, but it also leads to increased independence for the child and the introduction of other external influences. These observations and characteristics make school-age and adolescence particularly relevant developmental periods to study parental self-efficacy and its associations with parenting and child variables.

Table 1 Definitions of PSE and similar concepts

Concept	Definition
Parental self-efficacy	Parental beliefs or confidence in their ability to successfully carry out parenting tasks
Parental sense of competence	A parent's perception of his or her ability perform tasks associated with caring for their child
Parental confidence	The belief or judgment a parent holds about their ability to be successful in tasks associated with parenting
Parental self-esteem	Parents' judgement of worth as a parent
Parenting self-agency	Parents' overall confidence in their ability to act successfully in the parental role

Based on definitions offered by Vance and Brandon (2017) and Wittkowski and colleagues (2017). The definition of parenting self-agency is taken from Dumka and colleagues (1996)

Current Study

There is a need for an updated review of current research on the various roles and changes in parental self-efficacy. This systematic review synthesizes findings from 35 studies examining parental self-efficacy among parents of school-age children and adolescents (6 to 18 years) published since the Jones and Prinz (2005) review. It summarizes current research on the associations among parental self-efficacy, parenting, and child behaviors, as well as additional factors associated with parental self-efficacy. It also review results on changes over the school-age and adolescent period. Findings are contextualized and analyzed with consideration of study design (longitudinal versus cross-sectional) and study sample (school-age children versus adolescents), which enhances the understanding of the development of parental self-efficacy and longitudinal and reciprocal relationships with other variables. Studies on parental self-efficacy and related concepts were included to ensure a comprehensive examination of the current research. In addition to this analysis, this systematic review also identifies gaps in current understanding of parental self-efficacy and outlines future research directions.

Methods

Identifying Literature

The steps for research synthesis and meta-analysis outlined by Cooper (2010) were used to identify the literature, and the following electronic databases were used in the searches, with the final search being conducted in July 2022: Medline, PsycINFO, PsychARTICLES, ERIC, PubMed, Web of Science, and Google Scholar. Search filters were used to limit retrieved studies to those published in 2003 onward, as this would capture relevant studies published since the Jones and Prinz (2005) review.

Search Terms

The search terms were based on the keywords specified in studies within the literature on parental self-efficacy (PSE) (Albanese et al., 2019; Črnčec et al., 2010; Jones & Prinz, 2005; Vance & Brandon, 2017; Wittkowski et al., 2017). As many studies might examine PSE but use different terms for this concept (Vance & Brandon, 2017; Wittkowski et al., 2017), a liberal set of synonyms were used in the searches, rather than only using self-efficacy or PSE. Specifically, we used the following search string focused on study titles: (Parent* AND Self-efficacy OR Parental Self-Efficacy OR Confiden* OR Competen* OR Esteem OR Agency). Note that the asterisk on some of the words captures words with alternative endings or forms. All these combinations were used in each of the databases. In total, the searches included seven combinations of search terms in each of the seven databases (total 49 searches).

As a second step, reference lists of the existing literature review articles were examined, and all studies that had cited these review articles, to find additional potentially relevant studies to include in the review (Horsley et al., 2011). Checking reference lists (i.e., "snowballing" method) has shown to be efficient in finding relevant literature (e.g., Greenhalgh & Peacock, 2005; Horsley et al., 2011), with recent studies suggesting snowball techniques may capture more articles than a reliance only on systematic database searches (Greenhalgh & Peacock, 2005; Horsley et al., 2011). The snowball method was used in this study as a complementary method to the systematic database search strategy described above.

Inclusion and Exclusion Criteria

Studies were considered eligible if they met the following a priori inclusion criteria: (a) used a sample of parents of school-aged children or adolescents (six to 18 years), (b) analyzed empirical data, (c) was peer-reviewed and written in English. Only studies on children's psychosocial behaviors were included. In the screening of articles, studies that examined child physical health (e.g., such as child weight and physical activity) were excluded, as such behaviors are conceptually distinct from psychosocial behaviors and might have a unique relationship with PSE (e.g., Pulgarón, 2013). No distinction was made between studies that examined general PSE and task-specific PSE; both types of studies were included. Conceptually, self-efficacy regarding specific tasks or on a general level are expected to predict parenting and child outcomes in a similar way. To include studies using measures of parental self-efficacy on different levels offered a holistic analysis that would aid the conceptual understanding of PSE.

Several exclusion criteria were used to evaluate fit and to exclude studies that did not fit the aim of the study. Studies were excluded if they: (a) covered only a small part of the developmental range and also included children outside of the age range (e.g., children under age 6), (b) provided an unspecified age group (i.e., children below 18 without any age-specific information), (c) included parents and/or children who were drawn from a clinical population, (d) presented an evaluation/examination of a measure without any further examination of the relation to other relevant variables (e.g., child behaviors, parent behaviors), and (e) examined PSE as an outcome of an intervention without any further examination of associations with relevant variables.

Study Screening and Selection

The review of research in this study was guided by the steps from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Figure 1 illustrates each step of the systematic review process. The search process yielded a total of 6629 studies. The initial search and screening for relevance based on titles were conducted by the first author in consultation with the second author. In this step, the author assessed the alignment between the study titles and inclusion criteria; 377 articles met the inclusion criteria on the basis of title screening. Of these, 205 articles were excluded because they were duplicates, leaving 172 unique articles. In a second step of the review process, the first and second authors both screened the abstracts of these 172 studies. This was done independently by both authors, and disagreements about study relevance (28% of the studies) were discussed until consensus was reached about all studies deemed potentially relevant in preparation for full-text review. Of the 172 unique articles, 132 ultimately were deemed irrelevant by both reviewers (e.g., study samples covered an irrelevant age range), leaving 40 articles subjected to full-text review. An additional nine studies were identified through other sources (i.e., from literature lists of earlier review studies and articles citing these review studies). As a result of the full-text review, five articles were excluded because they covered a different age range or because PSE was measured as part of a larger parenting construct making it difficult to discern the role of PSE specifically. Ultimately, 35 studies were identified as relevant and included in the systematic review. None of these studies were included in the review by Jones and Prinz (2005).

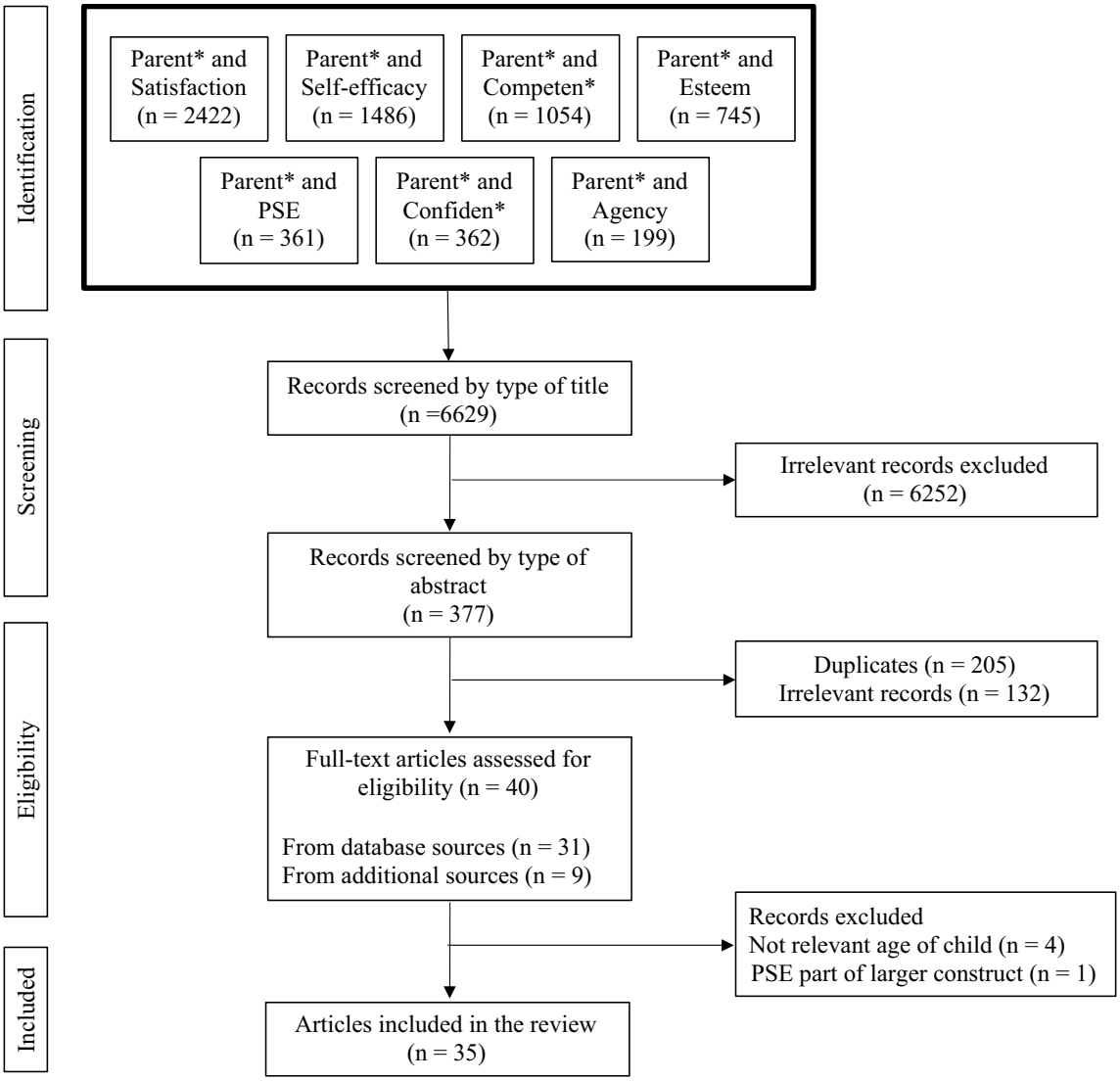

Fig. 1 PRISMA diagram over each step of the systematic review process

Data Extraction

The authors extracted relevant data from the 35 studies included in the review using a structured coding guide (See Table 2). In this guide, data points included study results, sample characteristics (e.g., age of the children, ethnicity or country), and design (cross-sectional or longitudinal). In the data extraction process, notes were made about internal and external validity, which is included in the discussion about the research. All information was inserted into a Microsoft Excel sheet for further analyses. One team member re-checked all the data extracted by

Table 2 Characteristics of the studies included in the review

Authors	Concept	Age of child	*N*'s	Parent gender	Country	Design
Babskie et al., 2017	Confidence	12–18 years	161	Both (33% fathers)	The United States	Cross
Bandura et al., 2011	Efficacy	13–19 years	284	Both (50% fathers)	Italy	Cross
Bornstein et al., 2017[a]	Efficacy	8 years	2273	Both (47%)	China, Colombia, Italy, Jordan, Kenya, Philippines, Sweden, Thailand, the United States	Long
Carless et al., 2015	Efficacy	12–17 years	106	Both (8% fathers)	Australia	Cross
Buchanan et al., 2022	Efficacy	11 years	136	Mothers	The United States	Cross
Chang et al., 2015	Confidence Competence	12–15 years	2015	Both (20% fathers)	Taiwan	Cross
Costigan & Koryzma, 2011	Efficacy	10–14 years	177	Both (48% fathers)	Canada	Cross
Daganzo et al., 2014[a]	Efficacy	7–9 years	99	Mothers	Philippines	Cross
de Haan et al., 2009[b]	Sense of competence	5–11 years	1107	Both (47% fathers)	Belgium	Long
Dumka et al., 2010	Sense of competence Efficacy	11–14 years	189	Mothers	The United States	Long
Egberts et al., 2015[b]	Sense of competence	11–12 years	404	Both (48% fathers)	Belgium	Long
Garcia & Alampay, 2012[a]	Efficacy	8 years	215	Both (46% fathers)	Philippines	Cross
Glatz & Buchanan, 2022[d]	Efficacy	11–18 years	1020	Both (50% fathers)	The United States	Cross
Glatz & Buchanan, 2015a[c]	Sense of competence Perceived influence	11–12 years	398	Both (29% fathers)	The United States	Long
Glatz & Buchanan, 2015b[c]	Sense of competence Perceived influence	11–12 years	401	Both (29% fathers)	The United States	Long
Glatz & Trifan, 2019[d]	Efficacy	11–18 years	968	Both (50% fathers)	The United States	Cross
Glatz et al., 2017[c]	Perceived influence	$M_{age} = 12$	130	Both (32% fathers)	The United States	Cross
Glatz et al., 2018[d]	Efficacy	11–18 years	1025	Both (50% fathers)	The United States	Cross
Henney, 2016	Confidence	6–18 years	121	Mothers	The United States	Cross
Holloway et al., 2016	Perceived capability	$M_{age} = 7$	309/372	Mothers	Japan/Korea	Cross
Junttila & Vauras, 2014[e]	Efficacy	$M_{age} = 10$	1572	Both (44% fathers)	Finland	Cross
Junttila et al., 2007[e]	Efficacy	$M_{age} = 10.5$	1572	Both (44% fathers)	Finland	Cross
Kiang et al., 2021[d]	Efficacy	11–18 years	219	Both (65% fathers)	The United States	Cross
Kiang et al., 2017[d]	Sense of competence	11–18 years	211	Both (65% fathers)	The United States	Cross
Latham et al., 2018	Efficacy; Satisfaction	$M_{age} = 6$	216	Both (50% fathers)	England/Wales	Cross
Lippold et al., 2019	Sense of competence	11–14 years	432	Mothers	The United States	Long
Mahabee-Gittens et al., 2011	Efficacy Confidence	9–16 years	272	Both (13% fathers)	The United States	Cross
Malm et al., 2017	Efficacy	9–10 years	142	Both (13% fathers)	The United States	Cross
Morrissey & Gondoli, 2012	Perceived influence	9–11 years	166	Mothers	The United States	Long
Slagt et al., 2012[b]	Sense of competence	6–10 years	1102	Both (50% fathers)	Belgium	Long
Steca et al., 2011	Efficacy	$M_{age} = 13.5$	130	Both (22% fathers)	Italy	Long
Suzuki, 2010	Efficacy Confidence	7–8 years	98	Mothers	Japan	Cross
Tazouti & Jarlégan, 2019	Efficacy	$M_{age} = 8.5$	406	Both (50% fathers)	France	Cross
van Eldik et al., 2017[b]	Sense of competence	6–10 years	723	Both (49% fathers)	Belgium	Long
Wong & Lee, 2017	Confidence	12–17 years	1233	Both (27% fathers)	Hong Kong	Cross

Cross cross-sectional study; *Long* Longitudinal study

[abcde]Studies with same subscripts use the same dataset

the team members with a 99% rate of agreement. Salient trends and patterns were identified in the data across and between studies, which facilitated summary and identified contrasts within and across studies.

Results

Quality Assessment of the Studies

An adapted list of quality assessment criteria (Kmet et al., 2004) were used to evaluate the quality of the studies (see Table 3 for the quality scores). Studies were evaluated

Table 3 Quality assessment of the studies included in the review

Authors	Criteria									Summary score
	C1	C2	C3	C4	C5	C6	C7	C8	C9	
Babskie et al., 2017	2	2	2	1	2	2	2	2	2	17 (.94)
Bandura et al., 2011	1	1	2	1	1	1	2	2	2	17 (.94)
Bornstein et al., 2017	2	2	2	2	1	2	2	2	2	17 (.94)
Carless et al., 2015	1	2	2	1	2	2	2	2	2	16 (.88)
Buchanan et a., 2022	2	2	2	1	1	2	2	2	2	16 (.88)
Chang et al., 2015	1	2	2	2	1	2	2	2	1	15 (.83)
Costigan & Koryzma, 2011	1	1	2	1	2	2	2	2	2	15 (.83)
Daganzo et al., 2014	1	1	1	1	1	2	2	2	2	13 (.72)
de Haan et al., 2009	2	1	2	2	2	2	2	2	2	17 (.94)
Dumka et al., 2010	1	2	2	1	2	1	2	2	1	14 (.78)
Egberts et al., 2015	1	2	1	1	2	2	2	2	2	15 (.83)
Garcia & Alampay, 2012	1	2	1	1	1	2	2	2	2	14 (.78)
Glatz & Buchanan, 2022	2	2	2	2	1	2	2	2	2	17 (.94)
Glatz & Buchanan, 2015a	2	2	2	1	2	2	2	2	2	17 (.94)
Glatz & Buchanan, 2015b	2	2	2	1	2	2	2	2	2	17 (.94)
Glatz & Trifan, 2019	2	1	1	2	1	1	2	2	2	14 (.78)
Glatz et al., 2017	2	1	1	1	1	2	2	2	2	14 (.78)
Glatz et al., 2018	2	1	1	2	1	2	2	2	2	15 (.83)
Henney, 2016	1	2	1	1	1	1	2	2	2	13 (.72)
Holloway et al., 2016	2	1	2	2	2	2	2	2	2	17 (.94)
Junttila & Vauras, 2014	2	2	1	2	2	2	2	2	2	17 (.94)
Junttila et al., 2007	2	2	1	2	2	1	0	2	2	14 (.78)
Kiang et al., 2021	2	1	1	1	1	2	2	2	2	14 (.78)
Kiang et al., 2017	2	1	1	1	1	2	2	2	2	14 (.78)
Latham et al., 2018	2	2	1	1	1	2	2	2	2	15 (.83)
Lippold et al., 2019	2	2	1	1	2	2	2	2	2	16 (.88)
Mahabee-Gittens et al., 2011	2	2	1	1	2	2	2	2	2	16 (.88)
Malm et al., 2017	1	2	1	1	1	2	2	2	2	14 (.78)
Morrissey & Gondoli, 2012	2	2	2	1	1	1	2	2	2	15 (.83)
Slagt et al., 2012	2	1	2	2	2	2	2	2	2	17 (.94)
Steca et al., 2011	2	2	2	1	2	2	0	2	1	14 (.78)
Suzuki, 2010	1	1	1	1	2	2	2	2	1	13 (.72)
Tazouti & Jarlégan, 2019	1	1	1	1	1	1	2	1	2	11 (.61)
van Eldik et al., 2017	2	2	2	1	2	2	2	2	2	17 (.94)
Wong & Lee, 2017	1	1	1	2	1	2	2	2	2	14 (.78)

C1 = Question/objective sufficiently described? C2 = Study design evident and appropriate? C3 = Subject (and comparison group, if applicable) characteristics sufficiently described? C4 = Sample size appropriate? C5 = Analytic methods described/justified and appropriate? C6 = Some estimate of variance is reported for the main results? C7 = Controlled for demographic variables? C8 = Results reported in sufficient detail? C9 = Conclusions supported by the results? 2 points = yes; 1 = partial; 0 = No. Summary score = total points (total points/total possible points)

on a total of 9 criteria and were given 0–2 points (0 = no; 1 = partial; 2 = yes) on each. The *first* criterion was whether the research questions/objective was sufficiently described. Studies were given 2 points if they had a clear section in the end of the introduction that presented a clear research question/aim and information about the target; 1 point was given if this information was not clearly stated or if this information was gained elsewhere in the manuscript. The *second* criterion was whether the study design was evident and appropriate (2 points). Studies were given 2 points if the study design enabled testing of the proposed research question. Studies were given partial points (1 point) if the design did not enable test of the research questions (e.g., research question specifies a mediation, but the study had a cross-sectional design). The *third* criterion involved the description of the participants. Studies were given 2 points if they reported descriptive information on child's age and sex, parents' age and sex, and family background (e.g., SES). One point was given if only partial information was reported. For the *fourth* criterion, the appropriateness of the sample size was evaluated. $N = 781$ was used as the cutoff to get 2 points, which should be enough to detect a weak correlation (0.10) with a power of 0.80 (alpha = 0.05). To get 1 point, $n = 82$ was used as the cutoff, which should be enough to detect a moderately strong correlation (0.30) with a power of 0.80 (alpha = 0.05). The *fifth* criterion involved the analytical methods. Studies were given 2 points if they reported on model fit and missing data, and if the statistical analyses were appropriate for the test of the research questions. If studies did not report on this or used inappropriate analyses, they were given either 1 or 0 points. The *sixth* criterion was whether studies reported some estimate of variance for the main results. Two points were given if there was a standard deviation or confidence interval; 1 point was given if studies presented only standardized coefficients; 0 if they did not include any indicators of variance. For the *seventh* criterion, studies were evaluated on the inclusion of demographic controls. Studies were given 2 points if they accounted for at least one demographic variable (i.e., race/gender/age), either as a central control variable or a moderator of study effects. If studies did not include any demographic variables, they received 0 points. The *eighth* criterion involved whether the results were reported in sufficient detail. Studies received 2 points if the results section and associated tables and figures offered enough details to enable readers to discern all results related to the research questions or study aims. For the *ninth* criterion, studies were given points based on whether their conclusions supported the results. Two points were given if study conclusions aligned with the research questions and study aims without extending beyond the bounds of study limitations (e.g., inappropriately implying or explicitly drawing causal inferences).

As can be seen in Table 3, most studies received a high score ($M_{points} = 15$; maximum points were 18). Points ranged from 11 to 17, with most studies receiving either 14 (28%) or 17 (28%) points. On criteria 6–9, most studies received maximum points. On criteria 1 and 2, about 60% of the studies received maximum points and on criteria 3 and 5, about 50% received maximum points. The reasons for lower points on these criteria were mostly due to the use of cross-sectional design although research questions specified a longitudinal relation, missing information about the participants or research questions, or lack of information on missing data. Criteria 4 (i.e., appropriate sample size) included the highest number of studies with only partial points. According to the specified cutoffs described above (2 points = at least 781 participants; 1 point = at least 82 participants), most studies (69%) used too small samples to be able to detect weak correlations. Overall, then, although the majority of the studies received high scores on quality, lower scores were due to designs not appropriate for the research questions, small samples, and limited information on participants.

What Role Does PSE have in Associations with Parenting and Child Behaviors?

Associations Among PSE and Parenting

A total of 19 studies have examined the associations between PSE and parent behaviors (see Table 4 for results). Across all 19 studies, independent of age of the sample, PSE and parenting were significantly associated. Eleven studies examined the cross-sectional associations at one time point only and found consistent evidence of an association between PSE and a range of positive parenting behaviors. Higher PSE have been associated with, for example, more positive parenting practices in samples in the United States (Glatz & Trifan, 2019; Glatz et al., 2017; Kiang et al., 2021) and Canada (Costigan & Koryzma, 2011), and more open and positive parent–child communication in Italy (Bandura et al., 2011), the United States (Glatz et al., 2018) and Taiwan (Chang et al., 2015). In addition, there is some evidence that higher PSE is associated with lower levels of negative parenting practices, such as parental rejection and aggression, in samples in the Philippines (Daganzo et al., 2014; Garcia & Alampay, 2012) and higher levels of parental monitoring in the United States and Taiwan (Chang et al., 2015; Malm et al., 2017). One recent study by Buchanan and colleagues (2022) found that parents with higher levels of PSE among mothers of children in early adolescence showed lower physiological responses to stress (i.e., more moderate skin conductance and a smaller increase in cortisol).

Table 4 Results on associations among PSE, parent, and child behaviors

	Cross-sectional	Longitudinal		Cross-sectional	Longitudinal		
Authors	PSE Parent	PSEParent	ParentPSE	PSE Child	PSEChild	ChildPSE	PSEParentChild
Babskie et al., 2017	–	–	–	Sig	–	–	–
Bandura et al., 2011	Sig	–	–	–	–	–	–
Buchanan et al., 2022	Sig	–	–	–	–	–	–
Bornstein et al., 2017	–	–	–	–	Non-sig	–	–
Chang et al., 2015	Sig	–	–	Sig	–	–	–
Costigan & Koryzma, 2011	Sig	–	–	Sig	–	–	–
Daganzo et al., 2014	Sig	–	–	–	–	–	–
Dumka et al., 2010[a]	–	Sig	Non-sig	–	Sig	–	Non-sig
Egberts et al., 2015	–	Sig	–	–	–	–	–
Garcia & Alampay, 2012[a]	Sig	–	–	Non-sig	–	–	–
Glatz & Buchanan, 2022	–	–	–	Sig	–	–	–
Glatz & Buchanan, 2015a	–	–	–	–	–	Sig	–
Glatz & Buchanan, 2015b[ab]	–	Sig	Sig	–	Non-sig	Sig	Sig (mothers)
Glatz & Trifan, 2019	Sig	–	–	–	–	–	–
Glatz et al., 2017	Sig	–	–	Sig	–	–	–
Glatz et al., 2018	Sig	–	–	–	–	–	–
Junttila & Vauras, 2014				Sig	–	–	–
Lippold et al., 2019[a]	–	Sig	Sig	–	–	–	–
Kiang et al., 2021	Sig	–	–	–	–	–	–
Mahabee-Gittens et al., 2011	–	–	–	Sig	–	–	–
Malm et al., 2017	Sig	–	–	Sig	–	–	–
Morrissey & Gondoli, 2012[ab]	–	Sig	Non-sig	–	Non-sig	Sig	–
Slagt et al., 2012[ab]	–	Sig	Sig	–	Non-sig	Sig	Non-sig
Steca et al., 2011	–	Sig	–	Sig	–	–	–
van Eldik et al., 2017[ab]	–	Sig	Sig	–	Non-sig	Sig	–

=correlation; =prediction over time

[a]Test of bi-directional link between PSE and parenting

[b]Test of bi-directional link between PSE and child behavior

Two longitudinal studies have examined PSE as a predictor of parenting (Egberts et al., 2015; Steca et al., 2011). In a Belgian sample (children ages 11 or 12), PSE predicted higher levels of warmth and support, and lower levels of parental reactivity two years later (Egberts et al., 2015). Further, in an Italian sample (children ages 13 or 14) (Steca et al., 2011), PSE predicted higher levels of parent–child positive and open communication three years later (Egberts et al., 2015). These two studies used longitudinal data (PSE at the first time point and parenting at the second time point), but they did not control for parenting at the first time point, and, thus, the results do not inform about increases or decreases in parenting over time.

Six additional longitudinal studies among parents of adolescents in the United States (Dumka et al., 2010; Glatz & Buchanan, 2015b; Lippold et al., 2019; Morrisey & Gondoli, 2012) and parents of children in school-age collected in Belgium (Slagt et al., 2012; van Eldik et al., 2017) have examined the possibility that PSE might both predict and be predicted by parenting. Five of these studies measured PSE and parenting at two or more time points and used cross-lagged models or alternative models to examine the reciprocal relationships between parenting and PSE (Dumka et al., 2010; Glatz & Buchanan, 2015b; Lippold et al., 2019; Morrisey & Gondoli, 2012; van Eldik et al., 2017). The sixth study (Slagt et al., 2012), measured PSE at the first and third time points, and parenting at the second time point (i.e., parenting was used as a predictor of *changes* in PSE, but PSE was not used as a predictor of *changes* in parenting). Regarding findings, four of these studies—covering both school-age and adolescence—showed support for a reciprocal relation: higher levels of PSE predicted higher levels or increases in positive parenting (high support and low inept discipline, mindful parenting, and promotive parenting [parents' practices that aim to cultivate children's skills, talents, and interests and to prevent negative adjustment, Furstenberg et al., 1999) or parental well-being. Higher levels of positive parenting or parental well-being also predicted increases in

PSE (Glatz & Buchanan, 2015b; Lippold et al., 2019; Slagt et al., 2012; van Eldik et al., 2017). The two additional studies involved parents of adolescents (11–14 years, Dumka et al., 2010) and parents of late school-age children/early adolescents (9–11 years, Morrissey & Gondoli, 2012). These studies showed a unidirectional association: PSE predicted changes in mothers' parenting (democratic style, parental control), but mothers' parenting did not predict changes in PSE.

Associations Between PSE and Child Behaviors

In total, 17 studies have examined the association between PSE and child behaviors (mostly commonly externalizing behaviors) and showed evidence of a significant association between these. The longitudinal studies on this association, however, showed not only that these are associated, but also that the association might go one way.

Ten of the studies were cross-sectional and examined the association between PSE and child outcomes at one time point. These studies included both school-aged and adolescent-aged children, and all studies reported a significant association between PSE and child outcomes except for one (Garcia & Alampay, 2012). Results showed that parents with higher levels of PSE had children with fewer internalizing and externalizing behaviors in comparison to parents with lower levels of PSE. For example, Chang and colleagues (2015) found that higher PSE in Taiwanese parents about substance use was associated with lower levels of tobacco use and alcohol drinking. Mahabee-Gittens and colleagues (2011) found that U.S. parents who had higher PSE had children with fewer intentions to smoke. Other studies have found higher PSE to be associated with lower child aggression, violence, and bullying in U.S. samples (Malm et al., 2017) and Italian samples (Steca et al., 2011). Finally, there is some evidence that higher PSE is associated with better child psychological adjustment (Costigan & Koryzma, 2011), and lower risk for loneliness and depression in school-age children and adolescents in Finland (Junttila & Vauras, 2014) and Italy (Steca et al., 2011).

Three longitudinal studies have examined associations between PSE and child behaviors over time. These studies have either examined PSE as a predictor of changes in child behaviors (Bornstein et al., 2017; Dumka et al., 2010) or child behaviors as a predictor of changes in PSE (Glatz & Buchanan, 2015a). None of these studies, however, have examined bi-directional links between PSE and child behaviors. The two studies examining PSE as a predictor of changes in child behaviors showed different results. Dumka and colleagues (2010) found a significant link between PSE and changes in conduct problems among parents of children somewhat later in the adolescent period (11–14 years at the starting point) in the United States. Bornstein and colleagues (2017), on the other hand, did not find support for a link between PSE and changes in child externalizing behaviors (age 8 at the starting point) in nine different countries (China, Colombia, Italy, Jordan, Kenya, Philippines, Sweden, Thailand, and the United States). The only study that examined child behaviors as a predictor of changes in PSE (Glatz & Buchanan, 2015a) found that internalizing behaviors predicted initial levels, but not changes, in PSE.

Four longitudinal studies—all conducted in either the United States or Belgium—tested for bidirectional links between PSE and child externalizing behaviors over time (Glatz & Buchanan, 2015b; Morrissey & Gondoli, 2012; Slagt et al., 2012; van Eldik et al., 2017). All four studies measured PSE and child behaviors with two or more time points and used cross-lagged or alternative models to examine reciprocal relations. These studies covered samples of children from six to 12 years at the starting point, which, as they are longitudinal, together cover a large part of the school-age and adolescent period. All bidirectional studies provided evidence that difficult child and adolescent behaviors predicted decreases in PSE, but none showed evidence of an effect of PSE on changes in child behaviors.

Indirect Effects of PSE on Child Behaviors, via Parent Behaviors

In addition to tests of *direct effects* among PSE, parent, and child behaviors presented above, three identified studies tested an *indirect effect* of PSE on child behaviors, via parenting behaviors. These have presented mixed results, with some showing empirical support and some not. One longitudinal study on U.S. parents of children ages 11 or 12 at the starting point found evidence of such mediation. Specifically, Glatz and Buchanan (2015b) found that higher PSE predicted more promotive parenting, which in turn predicted lower levels of externalizing behavior, but only among mothers. Among fathers, the link between PSE and parenting was not significant. Yet other studies have not found support for an indirect effect. Slagt and colleagues (2012) conducted a longitudinal study in Belgium on parents of children 6 to 10 years at the starting point, and they did not find inept discipline (i.e., criticism, anger, Prinzie et al., 2007) or supportive parenting to be significant mediators between PSE and later child externalizing behaviors. Similarly, a longitudinal study by Dumka and colleagues (2010) conducted in the United States, found that the effect of maternal PSE on adolescents' externalizing behaviors (11–14 years at the starting point) was not mediated by changes in maternal control practices.

What Additional Parent, Child, and Socio-contextual Factors are Associated with PSE?

Parent Characteristics as Predictors of PSE

Twenty-three (66%) of the studies examined additional correlates of PSE. Parent characteristics were the most frequently examined factor among studies on parents of both school-age children and adolescents ($n = 18$, 51%). Parents' age, ethnicity, and gender were significant predictors of PSE, although there were some mixed findings. Older parental age was found to be associated with higher levels of PSE in a sample including mostly mothers (Carless et al., 2015). Regarding parents' gender, the few existing studies show mixed results. One study found that Belgian mothers of children ages 5–11 reported lower levels of PSE than Belgian fathers (de Haan et al., 2009), whereas another study suggested that Taiwanese mothers of adolescents have higher mean levels of PSE than Taiwanese fathers (Chang et al., 2015).

With respect to racial/ethnic identity, one cross-sectional study (Glatz & Trifan, 2019) and one longitudinal study (Glatz & Buchanan, 2015a) found that parents of adolescents who identified as African American reported higher initial levels of PSE. In the study by Glatz and Buchanan (2015a), however, parents identifying as European American changed less in their PSE over time in comparison to parents who identified as African American. Another study found no difference between African American and European American parents of children ages nine to 16 (Mahabee-Gittens et al., 2011). In the context of immigration, cross-sectional studies from the United States found that acculturation was positively associated with PSE, whereas acculturation conflict between parents and adolescent-aged children (10–18 years) was negatively associated with PSE (Costigan & Koryzma, 2011; Kiang et al., 2017).

Other studies have examined associations between parents' psychological well-being, adjustment, and values in shaping PSE. Most of these studies were cross-sectional, and the results presented here are associations at one time point only. Several studies conducted in Europe and Asia indicate that higher levels of parent depression, anxiety, stress, and loneliness are associated with lower levels of PSE among parents of children in both school-age and adolescence (Carless et al., 2015; Junttila et al., 2007; Suzuki, 2010). Two studies (conducted in Belgium and the United States) assessed associations between parents' personality and PSE, finding that higher levels of extraversion, agreeableness, emotional stability, autonomy, dominance, self-control, and independence were associated with higher levels of PSE; whereas higher levels of apprehension and anxiety were associated with lower levels of PSE (de Haan et al., 2009; Henney, 2016). There is also some evidence that parents' attitudes, expectations, and aspirations as they relate to their child are linked to PSE. For instance, U.S. parents' higher expectations of adolescents' risk-taking behavior were associated with lower PSE (Glatz & Buchanan, 2015a). Another study on French parents of school-age children found that higher aspirations and expectations among parents for their child were associated with lower levels of PSE (Tazouti & Jarlégan, 2019).

Child Characteristics as Predictors of PSE

In seven studies (20%), child demographic characteristics and personality traits were assessed as predictors of PSE. In studies conducted in Asia (Japan and Taiwan) and in the United States, parents of school-age children and adolescents have shown to report higher levels of PSE for girls than for boys, (Chang et al., 2015; Glatz & Buchanan, 2022; Holloway et al., 2016). There is also some evidence that early pubertal changes make parents feel less efficacious before and during the transition to adolescence (Glatz & Buchanan, 2015a), perhaps because these changes signal to parents about increased independence. In terms of child personality, one longitudinal study found that higher levels of child extraversion and conscientiousness were associated with higher levels of PSE, whereas child benevolence, emotional stability, and imagination were not significantly associated with PSE (Egberts et al., 2015).

Socio-contextual and Relational Factors as Predictors of PSE

Eight studies (23%) have examined factors within a larger socio-contextual and relational domain as predictors of PSE. These include relational aspects (e.g., parent–child, co-parenting) and family aspects (family dysfunction, SES), which are not related specifically to either the parent or the child. Parent–child communication quality and coparenting quality were both found to predict PSE, both concurrently (Latham et al., 2018) and longitudinally (Glatz & Buchanan, 2015a). Parent–child conflict was found to be negatively associated with smartphone-specific PSE in a cross-sectional study on a sample including a majority of mothers of adolescents in Hong Kong (Wong & Lee, 2017). In terms of family-level characteristics, family dysfunction was found to be negatively associated with PSE in mothers of adolescents in Australia (Carless et al., 2015), whereas higher socio-economic status and household income were both found to be positively associated with PSE in parents of school-age children and adolescents in the United States, Asia, and Europe (Glatz et al., Holloway et al., 2016; Tazouti & Jarlégan, 2019).

What Moderates the Associations Among PSE, Parenting, and Child Behaviors?

Although the studies in this review were conducted in 14 different countries, there were very few studies in which comparisons were performed between participants based on race, culture, or nationality. As exceptions, four studies compared findings in samples from two or more cultures. In two studies, Kiang and colleagues (Kiang et al., 2017, 2021) showed some differences in associations among Asian American parents and Latinx parents of adolescents. The first study (Kiang et al., 2017) showed that among Asian American participants, but not Latinx participants, acculturation conflicts predicted lower PSE, especially when parents felt less efficacious in transmitting heritage messages to their children (low levels of cultural-specific PSE). In the second study (Kiang et al., 2021), for Latinx parents, the negative correlation between grade and PSE was weaker when parents were high on involvement. In a third study by Mahabee-Gittens and colleagues (2011), the authors tested if there were racial differences in the effects of PSE on youth smoking intentions in a sample of majority mothers (ages 9–16), finding associations in their models were similar between African American and Caucasian families. A fourth study (Bornstein et al., 2017) was the only study testing differences between parents of school-age children living in different countries, and they showed that PSE was not a significant predictor of child externalizing behavior in any of the countries (China, Colombia, Italy, Jordan, Kenya, Philippines, Sweden, Thailand, and the United States).

In terms of gender, out of the 35 studies included in the review, eight included a sample of only mothers. The rest ($n = 27$) included both mothers and fathers, but with a general underrepresentation of the number of fathers in the sample. A few of these studies have examined gender differences in the associations involving PSE. These studies have presented mixed findings, with slightly more studies showing a non-significant effect. Babskie and colleagues (2017) found that higher PSE regarding alcohol and antisocial peers for mothers, but not fathers, was associated with less youth drinking and delinquency. Further, Glatz and Buchanan (2015b) found PSE to be more predictive of promotive parenting for U.S. mothers than for U.S. fathers, and promotive parenting mediated the association between PSE and child externalizing behaviors for mothers but not for fathers. These two studies were conducted on parents of adolescents between 11 and 18 years of age. Four other studies—covering a somewhat younger developmental period (5–12 years of age) than the two above-mentioned studies—did not find parent gender differences in the associations between PSE and parenting (Daganzo et al., 2014; de Haan et al., 2009; Egberts et al., 2015), or between PSE and child externalizing (van Eldik et al., 2017).

How Does PSE Change Over the Developmental Period?

Some studies have examined potential changes in PSE over time—either by presenting a correlation between age and PSE, by examining the means of PSE in different age groups (cross-sectional data), or by reporting on PSE at multiple times (longitudinal data). Most of these studies suggest that PSE decreases over the school-age and adolescent period.

Seven studies reported on correlations between children's age and PSE. Three of them—covering both school-age and adolescence (Carless et al., 2015; de Haan et al., 2009; Wong & Lee, 2017)—reported a non-significant correlation. Four studies (Egberts et al., 2015; Glatz & Trifan, 2019; Glatz et al., 2018; Kiang et al., 2017) reported a significant negative correlation suggesting that PSE was lower for parents of older children than for parents of younger children. One additional cross-sectional study on American parents of adolescents (Babskie et al., 2017) tested and showed evidence that parents of older adolescents reported lower levels of PSE than parents of younger adolescents.

Eight longitudinal studies on parents of school-age children (Morrissey & Gondoli, 2012; Slagt et al., 2012; van Eldik et al., 2017) and/or adolescents (Chang et al., 2015; Glatz & Buchanan, 2015a, 2015b; Lippold et al., 2019; Steca et al., 2011) reported the means of PSE at multiple time points. Most of these studies reported lower means over time (Chang et al., 2015; Glatz & Buchanan, 2015a, 2015b; Slagt et al., 2012; Steca et al., 2011; van Eldik et al., 2017), suggesting that PSE decreases as children become older. Two studies conducted in the USA showed slightly different results. First, one study on parents of school-age children showed somewhat stable means in PSE over time (Morrissey & Gondoli, 2012), and one study covering both school-age and adolescence showed higher means in mothers' PSE over time (Lippold et al., 2019). The study by Lippold and colleagues used data from an intervention study, which may be why means of PSE increased over time. Although several studies reported PSE means at multiple time points, only one study tested for significance in changes of PSE. Specifically, Glatz and Buchanan (2015a) used Latent Growth Curve Modeling to test for a significant slope in PSE among parents in the United States (Glatz & Buchanan, 2015a); a test that supported a significant decrease in PSE from 11 or 12 years of age to 14 or 15 years of age.

Discussion

Parental self-efficacy has been studied extensively, mainly because it is believed to be an important antecedent of effective parenting and subsequent child adjustment. To get a better understanding of the various roles of parental

self-efficacy for parent and child behaviors, as well as developmental changes, there is a need for an updated systematic review. The purpose of this study was to review current research among parents of school-age children and adolescents. The studies included in this review showed evidence of a reciprocal association between parental self-efficacy and parenting behaviors, and some evidence that self-efficacy predicted child behaviors indirectly via parenting. Further, studies suggest a decrease in parental self-efficacy over this developmental period, and that various individual and family factors might help explain differences in the level. This review offered insight into the nature of these associations, as it includes studies that examined parental self-efficacy as both a predictor and an outcome, and because the design of the studies (cross-sectional versus longitudinal) were in focus in the analysis.

Associations Among Parental Self-efficacy, Parenting, and Child Behaviors

Most of the studies showed a significant association among parental self-efficacy and parenting. Significant correlations in cross-sectional studies were supported by longitudinal studies highlighting that parents with higher levels of self-efficacy demonstrated more positive parenting. Importantly, studies that examined parental self-efficacy as part of transactional models offer the most comprehensive picture of relations among these variables. Most longitudinal studies that examined reciprocal relations showed that the influence went both ways. This finding support ideas in line with social cognitive theory (Bandura, 1997), in which parents who feel efficacious are more likely to parent in a positive way, which in turn increases their self-efficacy.

Turning to the association between parental self-efficacy and child behaviors, results differed depending on the study design. Many cross-sectional studies found a significant correlation between parental self-efficacy and child behaviors. However, longitudinal studies examining reciprocal relations have found that difficult child behaviors predict lower self-efficacy, but not the reverse. Hence, in general, findings did not support a bi-directional relation. This is in line with ideas of the child as active in the changes and development of parenting, and that parents' experiences with their children likely affect their perceived competence and confidence (e.g., Bell, 1968). The unfolding of the direction of this association has important implications for the understanding of the role of parental self-efficacy for child behaviors. To only examine and report results on one direction could risk flawed conclusions.

As research models become more complex and aimed at examining underlying mediational and transactional processes among parental self-efficacy, parenting, and child variables, the conclusions become less clear. There are also very few studies examining these complex models, which makes the conclusions less certain. For example, for a long time, research has conceptualized parental self-efficacy as a predictor of parenting and subsequent child adjustment (i.e., a mediation model). This idea is in line with social cognitive theory (Bandura, 1997), which suggest that parents who feel efficacious are more motivated to persist in their parenting efforts, which subsequently would have positive implications for child adjustment. A sense of efficacy may also reduce parental frustration, allowing them to facilitate a close, warm relationship with their children, all which should have positive effects on children's behaviors. To examine this conceptual model fully, there is a need for longitudinal data. As to date, only three longitudinal studies on parents of school-age children and adolescents have examined these mediational links and the existing studies differ in whether they find significant or non-significant results. One study (Glatz & Buchanan, 2015b) found that parental self-efficacy predicted positive parenting and subsequently better child outcomes, yet others did not (Dumka et al., 2010; Slagt et al., 2012). These mixed findings may be due to differences in the type of parenting examined. It is possible that parental self-efficacy has an indirect effect on child behaviors, but only via certain parenting behaviors. Differences might also be because of different age ranges in the studies. The studies that did not find significant mediation (Dumka et al., 2010; Slagt et al., 2012) used larger age ranges (ages 6–10 and 11–14) whereas the study by Glatz and Buchanan (2015b) included parents of adolescents ages 11 or 12. It is possible that different processes take place depending on the child's age, and that studying more narrow age ranges may capture more nuanced processes.

Factors that are Associated with Parental Self-efficacy

Factors associated with parental self-efficacy were found in all domains, but most commonly in the parent domain. This is in line with general models of determinants of parenting (Belsky, 1984) and earlier review studies on predictors of parental self-efficacy (Fang et al., 2021). Parents' compromised well-being, anxious personality traits, challenging child behaviors, and low qualities of dyads and families, were all important correlates of lower self-efficacy. Some of these represent malleable factors (i.e., factors that are subject to change or influence, Fang et al., 2021), whereas other correlates are more static or intractable. Among those interested in understanding how to cultivate parents' self-efficacy, it will be important to focus on those correlates that are malleable (e.g., well-being, family communication). Importantly, many variables assessed as predictors were not also modeled as being influenced by parental self-efficacy. It is possible that self-efficacy also exerts influence on some of the

predictors represented in studies. For example, in the studies by Steca and colleagues (2011) and Glatz and Buchanan (2015a), parent–child communication was used to predict the level of parental self-efficacy. It is, however, possible that parents who feel more efficacious have better communication skills, resulting in more positive communication with their children. Moreover, and perhaps more likely, the associations between parental self-efficacy and these variables might be bidirectional or transactional. In fact, many of the studies that conceptualized and tested parental self-efficacy as an outcome used cross-sectional data that, unfortunately, did not provide opportunities to test for causality. As a final remark, some of the factors were only examined in one or two studies, which makes conclusions rather unsure, and other factors are yet to be studied (e.g., impact of siblings) in future research.

The studies in this review were diverse in terms of the ethnicity of the participants or country of data collection. No clear differences were found as a result of ethnicity or country, rather the results seemed to be similar across studies, suggesting that many of the processes are universal. However, it should be noted that there is a lack of studies from many countries (e.g., African countries, countries in Central America) and there is an overrepresentation of studies from western countries. This has the potential to bias the understanding of processes involving parental self-efficacy, and it is, thus, difficult to conclude that the findings in the studies are completely universal. Although studies were conducted in multiple countries, few studies did explicit comparisons across countries or cultures. In fact, although a result might be significant in studies on different samples, it is possible that results would differ between two samples if they were explicitly compared. That there are few studies examining differences as a function of ethnicity, culture, or country is a notable limitation, given a body of research and theory that suggests that parenting and its effects on children may differ based on culture and race (e.g., Coard et al., 2004; Jensen & Dost-Gözkan, 2015). Further, there may be specific cultural parenting practices or beliefs that affect or are affected by parental self-efficacy. Yet only one study examined such potential difference (Kiang et al., 2017). Future studies are clearly needed that examine the role of culture and race and ethnicity in predicting self-efficacy and modifying its relations to parent and child behaviors.

Parental Self-efficacy from a Developmental Perspective

An important question for research and interventions is if and how parental self-efficacy develops over time. This review included studies on parents of school-age children and adolescents (6 to 18 years). These are periods in which children undergo major physical, cognitive, and socio-emotional changes, which all have an impact on parents and their beliefs about parenting (Bornstein, 2019). The studies in this review suggested that there might be more similarities than differences in parental self-efficacy during these two age periods. For example, studies showed decreasing means in both time periods, suggesting that parents might start to feel less efficacious at the time their children start school and continue decreasing the older the child gets. However, it is important to note that only one study (Glatz & Buchanan, 2015b) tested significant changes and showed evidence that parental self-efficacy decreased from early adolescence to middle adolescence. Other studies report decreasing means as youth become older but did not test for significant changes over time. As the study by Glatz and Buchanan (2015b) reported on changes when the youth were 11 to the time they were 15, it is still unknown if there are similar changes before the age of 11 and after the age of 18. Such knowledge is critical given the important developmental processes that may start prior to age 11 (i.e., puberty) and after 18 (i.e., increased autonomy/independence). Further, such changes may vary depending on cultural differences, which cannot be captured by one USA study only.

Studies found that parenting predicted parental self-efficacy similarly across these developmental periods, but some differences emerged regarding some sociodemographic factors. For example, parents' personality, parents' compromised well-being (parent domain), parent–child communication, SES (socio-contexual domain), and children's gender (child domain) seem to have similar associations with parental self-efficacy regardless of whether the sample focused on school-aged or adolescent-aged children. However, more stable, sociodemographic factors predicted self-efficacy differently in these developmental periods, at least in some studies. Two studies (Chang et al., 2015; de Haan et al., 2009) suggested that mothers might feel more efficacious than fathers during the school-age period whereas fathers might feel more efficacious than mothers during adolescence. Other studies showed more differences between mothers and fathers in the associations among parental self-efficacy, parent, and child variables among parents of adolescents than among parents of school-age children. Specifically, some studies suggested that ethnic differences might be more pronounced during adolescence than during the school-age period (Glatz & Buchanan, 2015a; Glatz & Trifan, 2019; Mahabee-Gittens et al., 2011). It seems then that parents' gender and ethnicity might play different roles for parental self-efficacy in different developmental periods—and more differences might be present in later ages than in earlier ages. Importantly, these differences should be interpreted with caution and should be seen as indications rather than

strong evidence, as the number of studies exploring these factors were few.

Limitations

The research on parental self-efficacy is currently limited in three main ways. This was clear from the analysis of the results of the studies (Tables 2 and 4), but also apparent in the analysis of the quality of the studies (Table 3). First, there is a need to unfold longitudinally whether and how parental self-efficacy influences parenting behavior and subsequently child externalizing behaviors. Longitudinal studies using different parenting mediation variables and/or that account for the reciprocal relations between parental self-efficacy and parenting would move the field forward in this respect. Second, it is still somewhat unknown about the developmental course. Out of the 35 studies included in the review, only one-third ($n = 11$) examined longitudinal data, which limits conclusions about developmental changes in parental self-efficacy. Although exploring means at different time points or in different age groups might hint at potential changes, more longitudinal examinations on changes over time are needed to confirm that parents report lower levels of self-efficacy over the course of school-age and adolescence. Third, future studies need to take on a more thorough examination of the role of race, ethnicity, and culture on parental self-efficacy. Such studies would shed light on the generalizability of both predictors of parental self-efficacy as well as how it is related to parenting and child behaviors. Future studies that use longitudinal data on diverse samples will continue to enhance the understanding of this important parent construct.

This particular review also has limitations that should be discussed. First, although this review takes a clear developmental approach, it focuses only on parents of school-aged and adolescent children. As such, it is unknown if these findings can be generalized to infancy or early childhood, or other times when parental self-efficacy may also be important. Additionally, the present review does not allow a fine-grained analysis of specific time periods (i.e., middle childhood vs late adolescence). As more developmental studies that specify a smaller age range become available, a deeper dive into a particular developmental period within the school-age years is critical. Second, like all systematic reviews, different search criteria may have resulted in a different array of articles to review. The conclusions drawn here are based on these studies and might not show a complete picture of the current research. Third, this review aimed to examine results and patterns across a broad array of studies. There may be many reasons for different or mixed findings between studies (i.e., different demographics, ages, study design) beyond those discussed in this paper. Readers are encouraged to review Tables 2 and 4, as well as the original articles for more details about each paper.

Strengths

This study also has a number of strengths that help move the research field forward. First, the focus of the various roles of parental self-efficacy is unique and offers an important step in the understanding. In comparison to recent reviews that examined parental self-efficacy as either a predictor (Albanese et al., 2019) *or* an outcome (Fang et al., 2021), this review included studies that have conceptualized and examined different roles of parental self-efficacy in relation to child and parent behaviors. As a result, it offered a more comprehensive view of the empirical evidence regarding the different associations described in social cognitive theory and transactional models of reciprocal effects between parents and children (Bandura, 1997; Sameroff, 2009). Second, all studies reviewed in this study cover parents of school-aged children and adolescents. This focus allowed us to focus in on a time period when parental self-efficacy tends to decrease (Ballenski & Cook, 1982; Glatz & Buchanan, 2015a) and also that may require new skills, as parents spend less time with children once they enter school. Third, the review criteria were broad and included several related search terms (i.e., perceived competence and confidence), as well as parental self-efficacy on different levels (i.e., task-specific and general parental self-efficacy). This follows the approach used by Jones and Prinz (2005) and the decision was based on earlier conceptual papers that have shown high congruency between these concepts (Vance & Brandon, 2017; Wittkowski et al., 2017). In general, relationships among parental self-efficacy on the one hand and parent- and child variables on the other hand, did not seem to differ depending on the operationalization, which support earlier studies regarding overlapping constructs. Thus, combining them gained a more comprehensive view of the literature.

Conclusion

What role does parental self-efficacy have in relation to parent and child behaviors, and what explain differences between parents? Although the number of publications on parental self-efficacy have increased over the last two decades, without a full review of the current literature, the answers to these questions are unknown. The aim of this review study was to analyze current research to get a better understanding of the role of parental self-efficacy in relation to parent and child factors, as well as changes over the school-age and adolescent period. The results support a reciprocal relation between parental self-efficacy and

parenting: Parents who feel efficacious use more positive parenting practices, which in turn increase their efficacy. Additionally, research has started to unfold the developmental course, suggesting that parental self-efficacy decrease over these years. The development and impact of parental self-efficacy, however, is multifaceted and there might be large individual differences. Studies show that whether parents feel efficacious or not is influenced by their perceptions of their child's difficult behaviors, as well as a large scope of parent-, child-, and family-specific variables.

Acknowledgements Nothing to acknowledge.

Authors' Contributions TG did the initial literature search, screened abstracts and full texts of relevant articles, worked on the data extraction, and wrote the first draft of the manuscript; ML screened abstracts and full texts of relevant articles, worked on the data extraction, and helped to draft the manuscript; GC did a re-check of the data extraction and helped to draft the manuscript; TJ worked on the data extraction and helped to draft the manuscript. All authors read and approved the final manuscript.

Funding Open access funding provided by Örebro University.

Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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