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Parenting Programs for Disruptive Child Behavior in China: A Meta-Analysis and Systematic Review

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Abstract

Purpose: To synthesize evidence of parenting program effects on disruptive child behavior in China and compare three program approaches: behavioral, relational, and cognitive. **Methods:** We searched five databases (four English and one Chinese) and identified 45 studies; 29 studies were included in a multilevel meta-analysis (92 effect sizes; total $N_{\text{total}} = 3,892$; $M_{\text{child age}} = 6.12$ years). **Results:** We found large overall effects on reduced disruptive child behavior ($d = -1.28$, 95% CI $[-1.86, -0.70]$, $p < .001$), reduced harsh and inconsistent parenting ($d = -1.70$, 95% CI $[-2.91, -0.49]$, $p < .001$), and improved parental warmth and positive behavioral management ($d = 2.67$, 95% CI $[0.41, 4.93]$, $p < .001$). Behavioral programs were more effective than relational programs ($\Delta d = .89$, 95% CI $[-1.7, -0.13]$, $p = .034$), and cognitive programs were too rare to analyze separately. **Conclusions:** Parenting programs for disruptive child behavior can effectively support Chinese families, especially those adopting a behavioral approach.

Keywords

parenting programs, child disruptive behavior, Chinese parenting, meta-analysis, systematic review

Disruptive child behavior (e.g., oppositional, hyperactive, aggressive behavior) is a problem worldwide (Canino et al., 2010). With a population of 238 million children under the age of 15 and estimated prevalence rates for disruptive behavior of 4.96% in 2018, China faces the challenge to support millions of families struggling with disruptive child behavior (Shen et al., 2018; Zheng & Zheng, 2015). Implementation and evaluation of parenting programs in China started in the 1980s (C. Leung et al., 2009) and has seen a strong increase in the past decades. Much of this work is not being picked up by the international literature, including recent systematic reviews and meta-analysis of parenting programs (Leijten et al., 2016, 2019), because many evaluation reports are in Chinese. We therefore conducted a systematic review of both the English and Chinese literature and meta-analyzed the effects of parenting programs to improve parenting and disruptive child behavior in China. In addition, we explored whether some intervention approaches (i.e., relational, behavioral, or cognitive) yield stronger effects than others.

Parenting programs for disruptive child behavior are well-known to reduce children's disruptive behavior by improving parents' strategies to deal with this behavior (Cunningham et al., 1995). These parenting programs typically adopt one or more of three approaches. First, parenting programs with a behavioral approach aim to break "coercive cycles" where parents and children unwittingly reinforce aversive behavior in each other (Patterson, 1982) by teaching parents to reinforce

positive child behavior (e.g., through praise and rewards) and to ignore or provide nonviolent negative consequences for disruptive child behavior (Bor et al., 2002). Second, parenting programs with a relational approach aim to enhance the parent-child relationship quality, an important factor shaping children's cognitions and expectations about social relationships, by teaching parents to increase their sensitivity and responsiveness to their child's needs (Moretti et al., 2009). Third, parenting programs with a cognitive approach aim to enhance parental feelings of self-efficacy to deal with disruptive behavior by systematically providing parents with positive feedback and having them reflect on mastery experiences (de Montigny & Lacharite, 2005; Mouton & Roskam, 2015). Some programs integrate multiple approaches (e.g., Sanders, 1999).

Systematic reviews and meta-analyses have repeatedly confirmed the effectiveness of parenting programs, but most of this evidence comes from "Western countries" (i.e., North America,

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Europe, and Australia; Leijten et al., 2016), and although behavioral and cognitive approaches have been reviewed often (e.g., Buchanan-Pascall et al., 2018; Leijten et al., 2018; Mouton et al., 2018), the relational approach has only been studied in single trials (e.g., Kochanska et al., 2013). In the present study, we tested therefore whether these approaches, and any of them in particular, effectively reduce disruptive child behavior in China, a culture that is in many ways different from the countries where most parenting programs have been developed.

Deeply rooted in Confucianism, China has a parenting culture that is in many ways different from Western parenting culture. Confucianism is a comprehensive system of culture norms and values which characterizes China's social, moral, and political aspects (Park & Chesla, 2007). It continues its profound influence on parenting by its notions on the important role of parents in child development (Chao, 1994; Luo et al., 2013; Shenghong & Dan, 2004). Following Confucianism principles, the developmental goal is for children to internalize and follow social norms, leading Chinese parents to put great emphasis on proper social behavior in their children (Chao, 1994). Illustrations of this are frequently discussing moral standards, social norms, and behavioral expectations (Doan & Wang, 2010). In addition, self-restraint of emotion and desires are considered the key for proper social behavior in Confucianism. Illustrations of this are that Chinese parents typically show little positive emotional expressions and do not discuss emotions and thoughts frequently—they focus more on children's behavior such as crying (Doan & Wang, 2010; Luo et al., 2013; Q. Wang et al., 2000).

Regarding parenting strategies, Confucianism proposed the notion of "Guan." Guan refers to training or educating children to exhibit appropriate social behavior out of love and concern (Chao, 1994). Guan regards parents as the authority who closely monitor and modify child behavior (Xu et al., 2005). The process of Guan allows for harsh discipline in cases where this is deemed necessary, such as physical discipline (Chao, 1994). Consistent with this notion, Chinese parents believe their effort has an essential influence on children's development and feel responsible for their child's behavior (Luo et al., 2013; Mori et al., 2012).

Within Chinese culture, behavioral, relational, and cognitive aspects of parenting might each play a key role in the development of disruptive child behavior. First, behaviorally, Chinese parenting styles are typically characterized as power assertive, including limited affection, relatively much criticism, and physical punishment (Chao, 1994; Ng et al., 2014). This style increases the likelihood for coercive parent-child cycles (Patterson, 1982) in which parents model forceful behavior, increasing the likelihood that children will copy this behavior (Nelson et al., 2006; Xing & Wang, 2017). Parenting programs that adopt a behavioral approach may provide Chinese parents with techniques to redirect disruptive behavior in a noncoercive way, curtailing the development of disruptive child behavior.

Second, relationally, Chinese parenting is traditionally characterized by firm reasoning by the fathers and parental warmth and sensitivity by the mothers (Ho, 1987). In return, and in line with Guan, children were expected to take care of and respect the physical, emotional, and spiritual needs of their parents (K. S. Yang et al., 1989). This reciprocal relationship is also reflected in the notion of "Xiao" (i.e., filial piety), which could be seen as a protective factor for the development of disruptive child behavior as it promotes harmony in parent-child relationship. However, in the 60s, the acknowledgment and influence of "filial piety" decreased dramatically as traditional Chinese culture was queried by government authorities (R. Q. He, 2013). Then in the 70s, affective family life started to be restored by the open-up policy, economic growth, and the one-child policy (Way et al., 2013). But these developments came with new parenting challenges. Concerns were voiced on how parents, who as a child received unaffectionate high-power parenting, would provide parental warmth and foster independence and autonomy in their children (Way et al., 2013). Parenting programs that adopt a relationship approach may revive the notion of filial piety in Chinese families, fostering affectionate parent-child relationships and reducing disruptive child behavior.

Third, cognitively, failure by the child to live up to societal standards reflects badly on its parents in Chinese culture (J. T. Leung & Shek, 2011). When encountering disruptive child behavior, Chinese parents may therefore, relative to parents in other countries, experience more parenting inadequacy and incompetence for disruptive child behavior. This experience may intensify harsh parenting behavior known to increase disruptive child behavior (C. Leung et al., 2009). In addition, some young Chinese parents struggle with incorporating both traditional Chinese parenting value and Western parenting ideologies, which could further evoke parental anxiety and compromise self-efficacy (Way et al., 2013). Parenting programs that adopt a cognitive approach may boost Chinese parents' sense of competence and increase motivation to exert influence on their child's behavior, reducing disruptive behavior.

Research in China also demonstrated the risk factors targeted in parenting programs rooted in Western culture, focusing on breaking coercive interaction patterns and enhancing the parent-child relationship, can be effective for Chinese families because patterns of risk factors and child outcomes are similar. For example, Chinese parents more inclined to use coercive parenting practices tend to have children who display more aggressive behavior (Nelson et al., 2006), and a poor parent-child relationship contributes to disruptive behavior in Chinese children, including aggressive behavior (X. Chen et al., 2000), attention deficit hyperactive behavior (Chang et al., 2013), and oppositional deviant behavior (T. He et al., 2018). However, it is uncertain whether parenting programs targeting these three risk factors yield similar effects in China.

Although each of these different parenting program approaches thus could fit well with the needs of Chinese families, some of them may be more effective for Chinese families

than others. The behavioral approach might align particularly well with the notion of Guan as to manage child behavior with parental discipline, and the cognitive approach might ease Chinese parents' anxiety caused by their enormous parental responsibility. The relationship enhancement approach, however, might fit less well with Chinese parenting beliefs of self-restraining emotions. Parents might not agree with the equal parent-child relationship promoted by Western parenting programs (C. Leung et al., 2009). In addition, parental warmth and nurturance in China are typically provided in more subtle and indirect ways than is often promoted in parenting programs (Chao, 1994; H. Fung, 1999; D. Y. Wu, 1985). Chinese parents, who are used to restraining emotional expressions, might find the relational approach hard to register to.

Therefore, we hypothesized that, first, parenting programs for disruptive child behavior are effective in China; second, programs with a behavioral or cognitive approach are more effective than those with a relational approach. Understanding the effects of parenting programs in China not only has clinical relevance but also informs us about the extent to which parenting program effects are context specific—if effect sizes (ESs) are similar or different from those typically found in Western countries. In addition, understanding which approaches are particularly effective to reduce disruptive child behavior suggests which risk factors in the family dynamic seem to play a key role in the development of disruptive child behavior in Chinese families.

Method

Search and Information Sources

We searched for studies published between 1970 and 2019 in four English databases (i.e., PsycINFO, MEDLINE, Web of Science, and Scopus) and one Chinese database (i.e., China National Knowledge Infrastructure [CNKI]). CNKI (known as “Zhongguozhiwang” in Chinese) is a key full-text online database of digital publications. Sponsored by the Ministry of Education of the People's Republic of China and lead by Tsinghua University, CNKI has built a comprehensive knowledge system, covering “90% of China knowledge and information resources” (CNKI, 2019). To identify articles, we used four categories of key words describing: (1) content of parenting programs (e.g., “parent training,” “father child interaction,” and “child behaviour management”); (2) intervention (e.g., “training,” “therapy,” and “trial”); (3) China (e.g., “China” and “Chinese”); and (4) disruptive child behavior (“aggressive behaviour,” “behaviour problems,” and “externalizing”). In addition, we identified and contacted key experts and family research centers in China. This review was not preregistered. No formal protocol was written.

Eligibility Criteria

In terms of Participant, Intervention, Comparison, Outcome and Study (Richardson et al., 1995), inclusion criteria for our systematic review were (1) participants: The intervention

program served for parents of children between 2 and 13 years old. (2) We excluded special populations such as children in temporary foster care or children with chronic illnesses. Intervention: The intervention focused primarily on parenting practices (i.e., >50% of sessions focusing on parenting, using any theoretical approach, e.g., behavioral or relational) and any methods (e.g., individual or group delivery). General family services to reduce disruptive child behavior, without a focus on changing parenting practices, were excluded. (3) Comparison: No criteria were set for the comparison. (4) Outcomes: Measures of disruptive child behavior (e.g., conduct, oppositional, hyperactive, aggressive behavior) and/or positive parental behavior management (e.g., involvement, praise, clear commands) and/or harsh and inconsistent parenting (e.g., criticism and corporal punishment). All types of methods (e.g., survey and observations) and informants (e.g., parents and teachers) were included. (5) Study design: Because we aimed to review the whole literature and expected experimental studies to be scarce, we included all between-person quantitative study designs, from pre-post test studies without a control condition to randomized controlled trials.

Study Selection and Screening

The first author screened titles and abstracts of all identified articles in the databases to identify potentially eligible studies. For studies that seemed to meet the criteria, we retrieved full texts that were reviewed by the first author and checked against inclusion and exclusion criteria. Uncertainties were resolved through discussion by the first and second authors.

Data Extraction

For each study, we coded its general study characteristics (e.g., design and sample characteristics), and program approach, based on information provided in the paper, was coded as three separate dichotomous variables. The behavioral approach included teaching parents techniques to redirect children's behavior such as positive reinforcement (e.g., praise or rewards) and nonviolent disciplining (e.g., ignore or time-out). The relational approach included teaching parents techniques to enhance the parent-child relationship, such as parent-child play, active listening, and empathy. The cognitive approach included providing positive feedback to parents, such as through verbal persuasion, mastery experience, or social comparison. This approach enabled a parenting program to be coded as one single or two or three approaches or missing at any three approach according to the primary components of the program. The first author collected data. Uncertainties (e.g., about the approaches adopted by the parenting program) were discussed by the first and second authors. To calculate the interrater reliability, 27% of the total studies was double-coded by two graduate students (one English speaking and one Chinese speaking) included in the meta-analysis. Interrater reliability was good with Cronbach's $\alpha = .81$.

Data Synthesis Strategy

Extracting ESs. We computed the ES of each child and parenting outcome measured with a specific method by a specific kind of informant. For example, both the ESs of teacher and parents' observation of a child's conduct behavior from one evaluation study were computed. ESs were represented as Cohen's (1988) d values based on means and standard deviations of the outcome variables. Means and standard deviations of the ESs were used to indicate the general ES and variations among programs. Specifically, Cohen's d reflected the standardized mean differences in child and parenting outcomes between families participating in the parenting program and control families. It is usually considered a large effect when Cohen's (1988) d is larger than 0.80, a median effect between 0.80 and 0.50, a small effect smaller between 0.50 and 0.20. In case no means and standard deviations are reported, we extracted other summary statistics (e.g., p values and sample sizes, or t -test statistics) to calculate the ESs.

Data inspection and outliers. ESs and standard errors extracted were inspected for outliers. Outliers were the statistics that were two standard deviations above or below their mean. We brought down the outliers to the value that is .001 less (i.e., when the outliers were two standard deviations below the mean) or more than two standard deviations (i.e., when the outliers were two standard deviations above the mean). Data set dealt with outliers were used to analyze the general effects of parenting programs and compare the intervention approaches.

Robust variance estimation (RVE) and multilevel approach. We conducted RVE with small sample adjustments to synthesize ESs. RVE takes the dependence of ESs nested within one study into account (Hedges et al., 2010). We first estimated an overall ES for disruptive child behavior and the two parenting outcomes. To determine the existence of potential moderators of program effects, a three-level, multilevel meta-analysis was conducted to examine within- and between-studies variance (Weisz et al., 2013). We then estimated the difference in ES between program approaches. We used the small sample correlation method developed by Tipton (2015) with a default value of $r = 0.8$ to indicate the correlation among ESs. We used "RobuMeta" and "Metaphor" package in R (R Core Team, 2019) with α at .05 as the level of significance for all analyses.

Publication bias. We assessed publication bias with a funnel plot and Egger's weighted regression test (Egger et al., 1997) and used trim and fill procedure if needed (Duval & Tweedie, 2000). We assessed the methodological quality of the included studies by examining the risk of bias with Cochrane Collaboration's tool (Higgins et al., 2011; Sterne et al., 2016, 2019) for random sequence generation, allocation concealment, performance bias, detection bias, attrition bias, reporting bias, and other sources of bias (e.g., mainly baseline differences between conditions).

Results

Study Characteristics

We identified 45 studies for our systematic review (see Table 1), of which 29 studies were included in the meta-analysis (Figure 1). Excluded studies did not provide sufficient statistics to compute ESs ($k = 4$; e.g., C. Leung et al., 2011), were case studies rather than between-subject comparisons ($k = 4$; e.g., Sun, 2018), or combined parenting programs with other interventions, such as child behavior training, leaving the effect of parenting programs confounded with that of other interventions ($k = 8$; e.g., C. Leung, Tsang, & Lo, 2017).

Region and time. The programs took place in 20 regions/cities in China, with the majority concentrated in relatively developed urban cities. More specifically, 36% of the parenting programs were implemented in Hong Kong, 12% in Shanghai, 6% in Taiwan, and the rest 46% scattered in major cities of different provinces. Social-economic status was not clearly documented. Studies that did report on family social-economic status (23%) did so using different indices (e.g., income level or education level). Evaluations of parenting programs started within a 20-year period ranging from 1999 to 2019.

Sample and participants. In total, 3,892 families participated in these parenting program evaluation studies with sample sizes ranging from $n = 16$ to $n = 660$. Most often, we saw 40–200 parents participated in each parenting program. However, 12 studies had relatively small sample sizes ($n < 30$). Generally, participants were mothers ranging from 60% to 89% percent across programs. Two programs involved fathers and independently reported paternal reports of parenting and child behavior. None of the programs specifically targeted grandparents. Low-income and disadvantaged family (i.e., immigrant family from mainland China) were targeted by four studies in Hong Kong. We did see one program dedicated to the so-called left-behind children who lived with family members in a rural area because their parents worked in a city. As for the children of the participants, their ages ranged from 3 to 14, with a mean age of 6.12 ($SD = 1.35$). Most studies included more boys than girls, with boys usually having higher percentage than girls.

Program design, settings, and evaluation. Nineteen programs were randomized control trials, with 16 being randomized by the individual and three cluster-randomized by the school. The majority of parenting programs were delivered in group format ($k = 34$), seven in individual format, and three programs in combined manner. All of the programs were delivered by professionals such as qualified behavior family therapists. While 31 programs included a control group, 12 programs used a pre-post test design. As for the evaluation method, 17 programs had follow-up evaluation which usually took place 3–6 months after immediate posttest.

Intervention characteristics. Almost half of the programs ($k = 24$) were imported from a Western country (e.g., the United States), of which three were reported to be adapted to the local culture.

Table 1. Characteristics of Included Studies.

Author	Program	Approach	Evaluation Design	Program Delivery	N	Percentage of boys (%)	Age Range (Mean Age)	Measure (Disruptive Child Behavior)	Measure (Parenting)	Dropout (%)	ITT
Ho et al. (1999)	Parent Management Training	B	Pre-post	G + I	25	92	4-10 (7.01)	CBCL	PCI	17	No
H. L. Huang et al. (2003)	BPT	B	Pre-post	G	23	87	3-6 (5.43)	DBRS-PF	N	39	No
C. Leung et al. (2003)	Triple P	B	RCT	G	46	85.5	3-7 (4.23)	ECBI; SDQ	PS	28	Yes
A. L. C. Fung and Tsang (2006) ^a	Parent-Child Parallel Group Anger Coping Training	B + R	RCT	G	12	100	^b (9.08)	CBCL	N	^b	NO
C. Leung et al. (2006)	Triple P	B	Pre-post	G	480	65.4	2-12 (3.28)	ECBI	N	0	Yes
Li et al. (2006)	Parenting Training	B	RCT	G	29	71.2	6-13 (^b)	CBCL	N	0	Yes
Liu and Wang (2007)	Russell Barkley Parent Training	B	Pre-post	G	30	83.3	6-12 (10)	DSM-IV	N	0	No
H. L. Huang et al. (2009)	BPT	B	Pre-post	G	27	66.7	4-6 (5.41)	CBCL; TRF	N	23	No
C. Leung et al. (2009)	PCIT	B	Control	G + I	53	66.7	2-8 (5.28)	ECBI	DPICS-A	10	No
C. Leung et al. (2010)	HOPE	B	Pre-post	G + I	18	55.6	3-5 (4.15)	ECBI	N	17	No
S. Zhang et al. (2010) ^a	Systematic Family Therapy	R	RCT	G	32	95	7-12 (^b)	CBCL	N	12	No
Xian (2010)	Russell Barkley Parent Training	B + R	RCT	G	8	75	First grader (^b)	DSM-IV	N	0	No
C. Leung et al. (2011) ^a	HOPE	B + R	Control	G	63	48	^b (4.51)	SDQ	N	5	No
Z. Wu et al. (2011) ^a	Parenting Training	B	Pre-post	G	73	^b	Second-fourth graders (^b)	SDQ	N	0	No
Y. Zhang et al. (2011)	Russell Barkley Parent Training	B	RCT	G	37	^b	6-12 (^b)	DBDRS	N	19	No
Hang et al. (2012)	Family Therapy	R	RCT	G	43	86.5	^b (9.4)	Conners	N	0	No
Y. H. Huang et al. (2015) ^a	Parent Training	B	Control	G	45	82.5	^b (8.4)	CBCL; SNAP	N	^b	Yes
M. Wu et al. (2012)	Structured Family Therapy	R	Pre-post	^b	40	90	7-12 (^b)	Conners	N	7	No
Low (2013)	The Challenging Years	R	Control	G	65	^b	11-14 (14.16)	SDQ	N	0	No
G. Yan et al. (2013)	Parenting Training	B	RCT	G	32	^b	4-6 (^b)	SNAP	BCS	6	No
Au et al. (2014)	Triple P	B	RCT	G	8	94.1	^b (7.68)	ECBI	N	12	No
C. Leung et al. (2014) ^a	Parent and Child Enhancement Program	B	Pre-post	G	23	43.5	2-3 (2.37)	ECBI; SDQ	N	0	No
M. Yang et al. (2014) ^a	Parenting Training	B	RCT	G	34	^b	6-12 (8.8)	Conners	N	0	No
Yu et al. (2015)	BFT	B + R	Pre-post	I	22	79	2-6 (4.3)	CBCL	N	14	No
Y. Wang et al. (2014) ^a	Family Intervention	R	Pre-post	G	207	52.2	6-11 (10)	CBCL	N	0	No
Y. Zhang et al. (2014)	Russell Barkley Parent Training	B + R	Pre-post	G	59	88	6-14 (10)	Conners	N	0	No
C. Leung et al. (2015)	PCIT	B	RCT	I	54	73.8	2-7 (4.51)	ECBI	DPICS	9	Yes
Qian et al. (2015)	Systematic Training for Parents	B	RCT	G	30	81.7	6-13 (8.65)	SNAP	N	0	No
T. Zhang et al. (2015) ^a	BFT	B	RCT	G	10	80	^b (6.6)	^b	N	0	No
Li et al. (2006)	Systematic Family Rehabilitation	^b	Control	G	20	^b	^b (fourth grade)	CBCL	N	0	No
Zhu (2016)	Parenting Training	B	RCT	G	48	80.3	6-12 (8.2)	Conners	N	0	No
S. Chen (2017) ^a	Solution-Focused Family Therapy	R	Case study	I	1	100	First grader (^b)	Clinical Impression	N	0	No
Jia et al. (2017)	Family Intervention	B	Control	G	17	65.7	3-6 (^b)	CBCL	N	0	No
C. Leung, Tsang, & Lo (2017)	PACE	B + R	RCT	G	76	51.7	^b (2.29)	ECBI	N	1	Yes
C. Leung, Tsang, Ng, & Choi (2017)	PCIT	B	RCT	I	32	87.5	2-7(5.51)	ECBI	DPICS-III	7	Yes
C. Leung, Tsang, & Kwan (2017)	HOPE-20	B	RCT	G	110	51.8	2-12 (2.52)	ECBI	N	3	Yes
A. L. C. Fung (2018)	Cognitive Behavioral Training	B + R	Control	G	37	76.9	8-12 (9.49)	RPO-PRF	N	11	!

(continued)

Table 1. (continued)

Author	Program	Approach	Evaluation Design	Program Delivery	N	Percentage of boys (%)	Age Range (Mean Age)	Measure (Disruptive Child Behavior)	Measure (Parenting)	Dropout (%)	ITT
Lai et al. (2018)	MFT	R	Control	G	49	85	6–12 (8.4)	SWAN	N	20	No
Ma et al. (2017) ^a	MFT	R	Control	G	116	63.3	5–11 (8.19)	^b	N	17	No
Jiang (2018) ^a	Structural Family Therapy	B + R	Case study	I	1	0	Fourth grader (^b)	Clinical Impression	N	0	No
Sun (2018) ^a	Family Intervention	R	Case study	I	3	33.3	Seventh grader (^b)	Behavior Problem Scale	N	0	No
J. Yan (2018) ^a	BFT	B	Case study	I	1	100	^b	Conners; DSM-IV	N	0	No
T. Zhang & Fu, (2018) ^a	Parenting Training	B + R	Control	G	42	63.1	6–12 (7.31)	Conners	N	0	No
Zhang et al. (2018)	BFT	B	RCT	G	10	75	5–6 (5.51)	CBCL-C	N	0	No
Du et al. (2019) ^a	Parental Group Training	B + R	RCT	G	178	82.6	6–12 (8)	^b	N	0	No

Note. CBCL = Child Behavior Checklist; HOPE = Hands-On Parent Empowerment Program; PACE = Parent-Child Enhancement Program; DBRS = Disruptive Behavior Rating Scale; DBRS-PF = Disruptive Behavior Rating Scale-Parent Form; Hope-20 = Hands-On Parent Empowerment Program—Universal Parenting Training; PCIT = Parent-Child Interaction Therapy; BPT = Behavioral Parent Therapy; RCT = randomized control trial; BFY = behavioral family therapy; B = behavioral approach; R = relational approach; Control = controlled trial; I = individual; G = group; SDQ = Strength and Difficulties Questionnaire; Conners = Parent Rating Scale for hyperactivity; CBCL-C = Child Behavior Checklist—Chinese Version; DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition; TRF = Teacher Rating Form; SNAP = Swanson, Nolan, and Pelham Teacher and Parent Rating Scale; ECBI = Eyberg Child Behavior Inventory; SWAN = SNAP-IV; RPO-PRF = Reactive-Proactive Aggression Questionnaire-Parent Report Form; PCI = Parent-Child Interaction Observation; DPICS = Dyadic Parent-Child Interaction Coding System; DPICS-III = Dyadic Parent-Child Interaction Coding System (Third Version); DPICS-A = Dyadic Parent-Child Interaction Coding System—Abbreviated Version; BCS = Behavioral Coding System; PS = Parenting Scale; N = no measurement; BFT = Behavioral Family Therapy; MFT = Multiple Family Therapy; CBI = Child Behavior Checklist; ITT = Intention to Treat.

^aExcluded from meta-analysis. ^bMissing data.

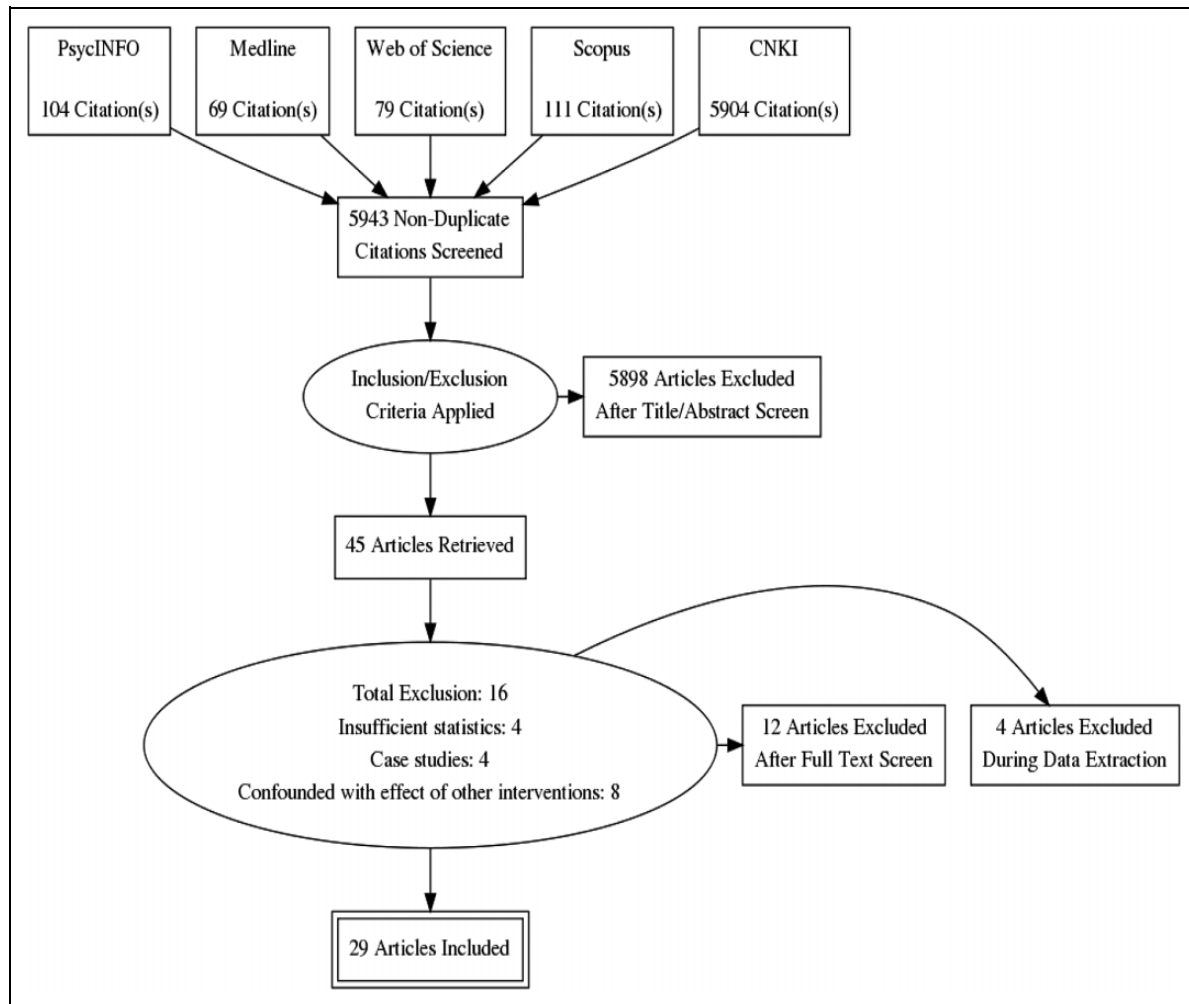


Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Flow chart of study selection.

The other 23 programs were homegrown parenting interventions. Generally, the intervention consisted of five to 10 sessions of 1–2 hr in a period of 1–2 months. Thirty-six programs utilized a behavioral approach, among which 19 programs used a single behavioral approach. While 14 programs had a particular focus to enhance the parent–child relationship, none of the programs seemed to have a particular focus to change parents’ cognitions. In addition, psychoeducation about diagnosed behavioral disorders, mainly attention deficit hyperactivity disorder (ADHD), for parents was a major intervention component of 44% of the programs. Other components include parent mindfulness training ($k = 2$) and cognitive behavioral therapy ($k = 1$). Eight programs also involved children and implemented child training or parent–child interaction training together with parenting training.

Measurements and outcomes. While the majority of disruptive child behaviors were reported by the parents ($k = 43$), all of the parenting measurements were observed by researchers. Six categories of disruptive child behavior were measured to indicate child outcomes, including hyperactivity, aggression, impulsivity, oppositional deviant behavior, conduct behavior, and the intensity of these behaviors. For parenting outcomes,

among the originally intended parenting behavior, parental harshness was measured by four programs, while parental warmth and behavioral control were not measured in any of these parenting programs. As for the parenting outcomes investigated in the meta-analysis, six programs measured parenting changes in positive behavioral management, and five programs measured changes in harsh and inconsistent parenting.

Parenting Program Effects

Synthesized program effects were displayed in Table 2. The overall effect of parenting programs on disruptive child behavior was large: $d = -0.93$, 95% CI $[-1.35, -0.50]$, $p < .001$. This suggests that when parents participated in a parenting program, children’s disruptive behavior reduced on average with almost one standard deviation. Large effects were also found on reduced harsh and inconsistent parenting, $d = -1.70$, 95% CI $[-2.91, -0.49]$, $p < .001$, and increased improving positive behavioral management, $d = 2.67$, 95% CI $[0.41, 4.93]$, $p < .001$. We found considerable heterogeneity, $I^2 = 57.40\%$; $Q(91) = 298.206$; $p < .001$, among the ESs for disruptive child behavior, especially at the between-study level,

$\sigma_v^2 = 59.97\%$; $\chi^2(1) = 17.235, p < .001$, supporting our test of whether ESs were moderated by program approach (i.e., behavioral, relational, or cognitive).

Comparison Between Approaches

The behavioral approach yielded a significant large effect on disruptive child behavior ($d = -1.28, 95\% \text{ CI } [-1.86, -0.70], p < .001$). The relational approach yielded a nonsignificant effect ($d = 0.19, 95\% \text{ CI } [-0.50, 0.13], p = .099$). Comparing the effects of the behavioral and relational approaches in moderation analyses confirmed that the behavioral approach was superior in reducing disruptive child behavior ($\Delta d = .89, p = .034$; see Table 3). Regarding effects on parenting

behavior, only one program adopted a relational approach. Therefore, we did not statistically compare the effects of approaches in changing parenting practices.

A post hoc analysis assessing the relative effect of combining the behavioral and relational approaches suggests the combined approach yields a significant effect ($d = -0.72, 95\% \text{ CI } [-1.41, -0.03], p = .026$; see Table 3). Compared programs with a combination of these two approaches to those of behavioral approach or relational approach, we found no evidence suggesting programs with a combination of two approaches are superior to those with one approach only.

There was no evidence for publication bias for program effect in child outcome (Figure 2; Egger’s test $z = .30, p = .765$), nor parenting outcomes (Figure 3; Egger’s test for warmth and positive behavioral management $z = 1.44, p = .151$; Figure 4; Egger’s test for harsh and inconsistent parenting, $z = .84, p = .402$). Risk of bias assessments are presented in Figures 5 and 6. With regard to random sequence generation, 14 of 29 studies explained their randomization procedure and were therefore rated as low risk of bias. As for allocation concealment, three of 29 studies used envelopes to allocate participants and were rated as low risk of bias. Eleven studies posed a high risk of attrition bias as they excluded data from families who dropped out prematurely and were therefore rated as high risk of bias. The remaining 18 studies were rated low risk of bias. In terms of reporting bias, one study showed indications of selective reporting and was consequently rated low risk of selective reporting. For baseline comparability, 12 studies showed no significant differences between baseline conditions and were rated low risk of bias. Another five studies had substantial difference between groups and were rated high risk of bias. The remaining 12 studies provided no adequate information to assess the risk of bias in baseline equivalence.

Table 2. Estimated Parenting Program Effects.

Outcome/Approach	k	N	d	SE	df	95% CI
Child disruptive behavior						
Behavioral	19	62	-1.28	.27	13.9	[-1.86, -0.70]
Relational	4	7	-0.19	.05	1.37	[-.50, 0.13]
Cognitive	0	0	—	—	—	—
Behavioral + relational	5	18	-0.72	.34	2.86	[-1.41, -0.03]
Overall	29	92	-0.93	.20	22.9	[-1.35, -0.50]
Positive behavior management						
Overall	5	13	2.67	.81	3.95	[0.41, 4.93]
Harsh and inconsistent parenting						
Overall	6	23	-1.70	.44	4.05	[-2.91, -0.49]

Note. k = number of studies; N = number of effect sizes; d = effect size; SE = standard error; df = degrees of freedom; 95% CI = 95% confidence interval.

Table 3. Comparison Between Parenting Program Approaches.

Outcome/Approach	Δd	SE	df	95% CI
Behavioral vs. relational	.89	.25	3.26	[-1.7, -0.13]
Integrative vs. behavioral	.24	.29	4.59	[-1.01, 0.52]
Integrative vs. relational	.57	.22	3.96	[-0.04, 1.17]

Note. Δd = changes in effect size; SE = standard error; df = degrees of freedom; 95% CI = 95% confidence interval; integrative = parenting programs with a combination of behavioral and relational approach.

Discussion and Applications to Practice

It is unknown whether Chinese family with disruptive child behavior can benefit from parenting programs for disruptive child behavior to the same extent as Western family does because most programs are developed in Western cultures. To our best knowledge, our study is among the first to review

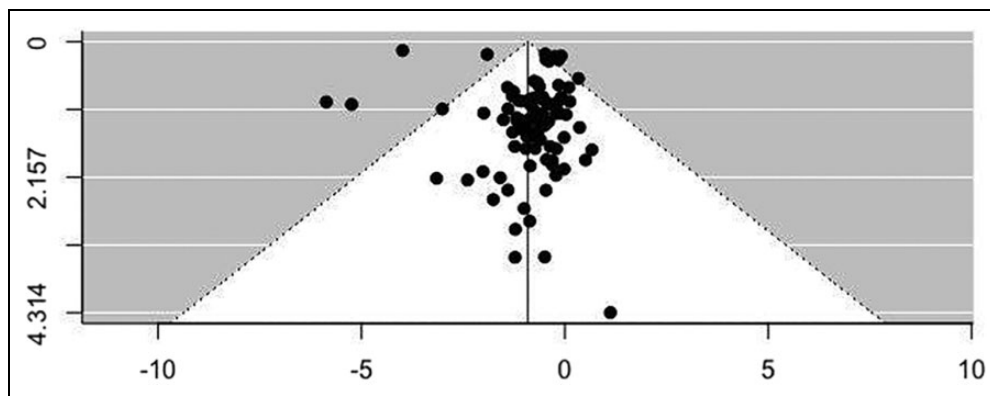


Figure 2. Funnel plot of effect sizes of parenting programs on disruptive child behavior. Note. x-axis = Cohen’s d; y-axis = standard error.

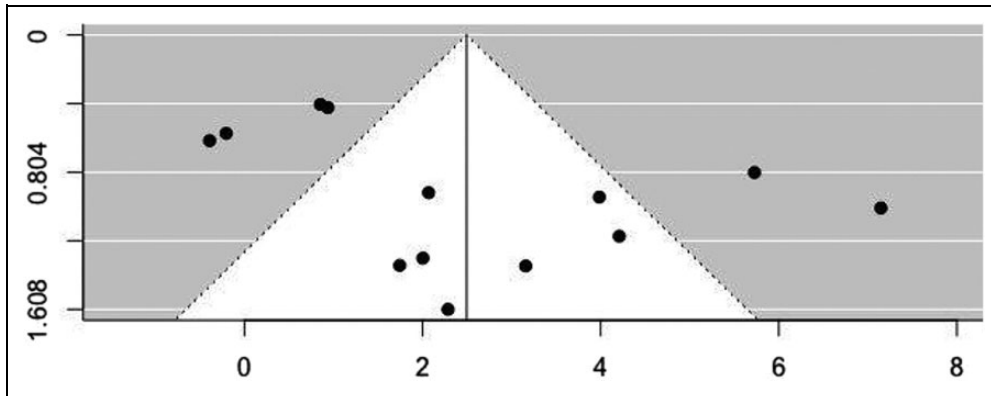


Figure 3. Funnel plot of effect sizes of parenting programs on positive behavior management. Note x-axis = Cohen's *d*; y-axis = standard error.

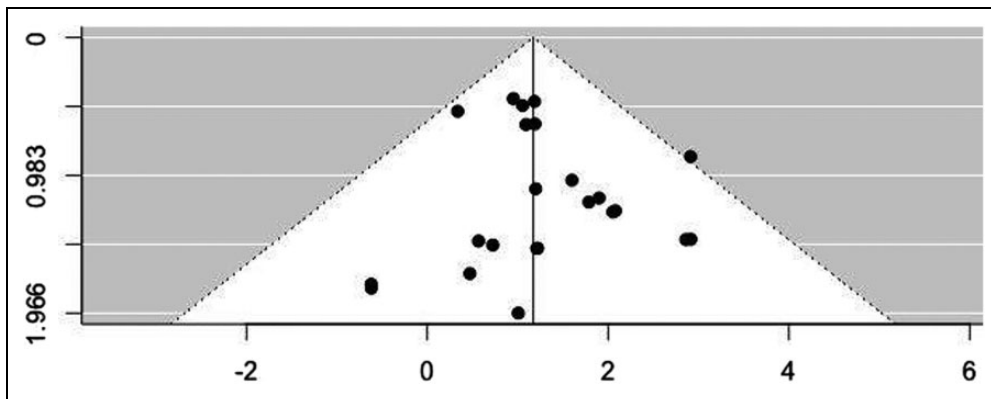


Figure 4. Funnel plot of effect sizes of parenting programs on harsh and inconsistent parenting. Note: x-axis = Cohen's *d*; y-axis = standard error.

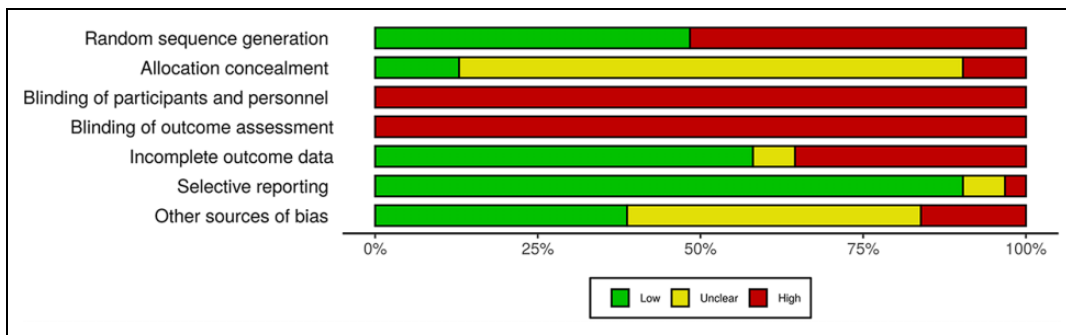


Figure 5. Risk of bias graph.

existing literature in both Chinese and English databases and synthesized available evidence on the effects of parenting programs for disruptive child behavior in China, utilizing a multilevel meta-analysis. Additionally, we compared the effectiveness of three different intervention approaches. We found a considerable number of evaluation studies in this field. From this evidence base, parenting programs for disruptive child behavior appeared to be effective in reducing disruptive child behavior and enhancing parenting practices. The majority of programs evaluated used a behavioral approach, which was found generally more effective than relational approach. None

of the studies seemed to adopt a cognitive approach. These results are discussed regarding their contributions to the knowledge of parenting program for disruptive child behavior and implications for future parenting program evaluation research.

Summary of the Studies in the Systematic Review

In general, most evaluation studies reported positive changes in disruptive child behavior. Evaluations are mainly short-term evaluations and cover a wide age range of children. A number of evaluation studies took place in public clinical settings,

	Risk of bias						
	D1	D2	D3	D4	D5	D6	D7
Yu, 2013	⊗	⊖	⊗	⊗	⊖	⊖	⊖
Chan, 2016	⊕	⊖	⊗	⊗	⊖	⊖	⊖
Au, 2014	⊕	⊕	⊗	⊗	⊗	⊕	⊕
Jin, 2016	⊗	⊖	⊗	⊗	⊕	⊗	⊗
Fung, 2018	⊗	⊖	⊗	⊗	⊗	⊕	⊖
Ho, 1999	⊗	⊖	⊗	⊗	⊕	⊕	⊖
Lai, 2018	⊗	⊗	⊗	⊗	⊗	⊕	⊗
Leung, 2006	⊗	⊗	⊗	⊗	⊕	⊕	⊕
Leung, 2017a	⊕	⊕	⊗	⊗	⊕	⊕	⊗
Leung, 2017b	⊕	⊕	⊗	⊗	⊕	⊕	⊕
Leung, 2017c	⊕	⊖	⊗	⊗	⊕	⊕	⊕
Leung, 2009	⊗	⊖	⊗	⊗	⊗	⊕	⊗
Huang, 2009	⊗	⊖	⊗	⊗	⊗	⊕	⊕
Huang, 2003	⊗	⊖	⊗	⊗	⊗	⊕	⊗
Yu, 2014	⊗	⊖	⊗	⊗	⊗	⊕	⊖
Liu, 2007	⊗	⊖	⊗	⊗	⊕	⊕	⊖
Zhang, 2011	⊕	⊖	⊗	⊗	⊗	⊕	⊖
Hang, 2012	⊕	⊖	⊗	⊗	⊕	⊕	⊕
Zhu, 2016	⊕	⊖	⊗	⊗	⊕	⊕	⊕
Zhang, 2014	⊗	⊕	⊗	⊗	⊕	⊕	⊖
Wu, 2012	⊗	⊖	⊗	⊗	⊗	⊕	⊖
Yan, 2013	⊕	⊖	⊗	⊗	⊗	⊕	⊖
Xian, 2010	⊕	⊖	⊗	⊗	⊕	⊕	⊖
Jia, 2017	⊗	⊖	⊗	⊗	⊕	⊕	⊕
Zhang, 2018	⊕	⊖	⊗	⊗	⊕	⊕	⊕
Qian, 2015	⊕	⊖	⊗	⊗	⊕	⊕	⊖
Lu, 2006	⊕	⊖	⊗	⊗	⊕	⊕	⊖
Leung, 2015	⊕	⊖	⊗	⊗	⊕	⊕	⊕
Leung, 2010	⊗	⊗	⊗	⊗	⊗	⊕	⊖
Leung, 2003	⊕	⊖	⊗	⊗	⊕	⊕	⊕
Low, 2013	⊗	⊖	⊗	⊗	⊕	⊕	⊕

D1: Random sequence generation
D2: Allocation concealment
D3: Blinding of participants and personnel
D4: Blinding of outcome assessment
D5: Incomplete outcome data
D6: Selective reporting
D7: Other sources of bias

Judgement
⊕ High
⊖ Unclear
⊕ Low

Figure 6. Risk of bias summary.

indicating Chinese family can relatively easily access parenting programs. The majority of the evaluations of programs developed in China adopted a randomized control design, suggesting that the effects of these programs were investigated rigorously. These findings suggest that parenting programs is an effective treatment option for Chinese family with disruptive child behavior.

The current evidence base also has important knowledge gaps. Few parenting programs were evaluated in rural areas in China where family culture is different from those in urban Chinese cities. Chinese rural population composite 41% of the total population (World Bank, 2018), including 6 million so-called left-behind children who live with their grandparents in rural areas while their parents work in cities (China Women’s Federation, 2013; The State Council of the People’s

Republic of China, 2018). While it might be hard to involve parents of these children to participate in parenting programs, children with disruptive child behavior living in rural area might have much more to gain from parenting programs since they on average show higher levels of disruptive behavior (e.g., aggression, anger, and physical attack) than children living in urban cities (Hao et al., 2020). More parenting program evaluation research that takes the conditions of rural children’s family and life into account is needed.

Chinese fathers seem to be underrepresented in parenting program evaluation studies. However, father–child interactions seem to have a stronger association with child disruptive behavior than mother–child interactions (Lundahl et al., 2008; Patterson & Dishion, 1988). Including fathers in parenting programs can lead to stronger changes in children’s behavior and parenting practices (see a meta-analysis, Lundahl et al., 2008). Consistent with literature in the Western societies (Harper & McLanahan, 2004), Chinese fathers also play an important role in child social and behavioral development (X. Zhang, 2013). For example, there is evidence to suggest that Chinese fathers’ coercive parenting impacted child aggression more than Chinese mothers’ (C. Yang et al., 2004; X. Zhang, 2013). Whether this means that increasing fathers’ involvement in parenting programs increases program effects should be further investigated.

Studies evaluating parenting programs developed in other, mainly Western, countries accommodated to parents’ concerns regarding certain intervention settings and techniques (Yu et al., 2015). Actual cultural adaptations seemed limited, in line with evidence that imported programs without cultural adaptation can work well in countries that are culturally different (Gardner et al., 2016). However, few studies documented cultural adaptation processes, making it difficult to understand the programs’ actual level of cultural adaptation and how this related to program fidelity. Similarly, only a few studies reported on key parent psychopathology characteristics and demographic characteristics that might account for the heterogeneity of the parenting program outcomes (Gardner et al., 2009; Smith et al., 2018).

Overall Effects From the Meta-Analysis

Consistent with our hypothesis, parenting programs for disruptive child behavior were effective in reducing disruptive child behavior and improving parenting practices for Chinese families. In fact, the overall ESs ($d = -0.93$) were larger than typically seen in meta-analysis aggregating study findings from mainly Western countries (e.g., $d = -0.47$; Leijten et al., 2018). This suggests that not only does the evidence base supporting the effectiveness of parenting programs for disruptive child behavior extend to China, but programs seem particularly effective in China.

The larger ESs in China might suggest that Chinese children and parents have gained more from the parenting programs. One possible explanation for this is that Chinese children might show higher levels of child disruptive behavior as a result of some key family risk factors of disruptive child behavior being

more salient in China (e.g., high-power social structure and less tolerance toward disruptive behavior; Chao, 1994; J. T. Leung & Shek, 2011; Ng et al., 2014). Although research on prevalence rates regarding disruptive child behavior yield contradictory results, it was found that Chinese children with ADHD exhibit higher level of hyperactivity and conduct behavior, comparing to children with ADHD in the Western societies (Luk et al., 1988). Chinese schoolboys on average also score higher on hyperactivity than Western schoolboys (Ho et al., 1996). Given that higher baseline level of behavior problems tends to be associated with more improvements in parenting programs (Leijten et al., 2013), the larger intervention effect for reduced disruptive child behavior in China might potentially be driven by more severe disruptive child behavior in Chinese families who then have more room and motivation for improvement.

A second possible explanation is that Chinese parents took in more from the support of parenting programs. Our findings show that parents' parenting behavior changed to a large extent (for positive behavior, $d = 2.67$; for harsh and inconsistent behavior, $d = -1.70$). Children may have benefited from these significant changes in their parents' behavior. First, Chinese parents might be more motivated to practice the techniques from the programs as indicted by a saying "it is parents' fault if their children misbehave (子不教父之过)," meaning child's misbehaving reflects badly on the parents due to the collectivistic culture where children were encouraged to behave well and promote group harmony (X. Chen et al., 2001). Second, due to the traditional authoritarian parenting styles, there might be a larger scope for parenting improvements for Chinese parents who might score higher in harsh parenting and lower in effective behavioral management before the parenting program.

However, the larger effect in Chinese children might be biased by the child outcome measurement which was mainly parent report of child disruptive behavior. It was found that citizens of countries, such as China, that are less individualistic, tend to overreport socially desirable activities with self-report measurements (Bernardi, 2006). Considering the clear parental expectation on appropriate child behavior, it could be that Chinese parents are more vulnerable to social desirability bias and underestimated the amount of child disruptive behavior. Nevertheless, changes in parenting behavior were mostly observed by researchers rather than parent-reported. The large effect of parenting programs for disruptive child behavior in improving parenting practices was, therefore, less subject to parents' biases. We call for future research directly comparing parenting programs conducting in different cultures to improve our understanding of how culture may interact with intervention effects and pathways to disruptive child behavior

Different Effects of Different Intervention Approaches

In line with previous research (Eisenstadt et al., 1993), the behavioral approach reduced child disruptive behavior to a larger extent than the relational approach. One explanation could be that most studies only included immediate effects of

the program on children's behavior. For a relational approach, specifically, there might be a delayed ("sleeper") effect. This is because the relational approach does not focus on changing children's behavior directly, but on promoting parental warmth and understanding, which further nurtures the child and eventually reduces child behavior. This process may take time. Especially when the relationship might already be hindered by disruptive child behavior, it might require more time for relationship to gradually unfold its effect (Bernier et al., 2010).

Additionally, there might be a relational enhancement bonus within the behavioral approach, in that nonharsh discipline helps avoid parent-child conflict and prevent parent-child relationship going down. Less disruptive behavior, resulted from a behavioral approach, was also associated with a better parent-child relationship since it is easier for parents to express warmth and care for the child (Combs-Ronto et al., 2009). This added relational enhancement effect in behavioral approach therefore allows behavioral approach to produce multiple intervention effects, which may explain why the approach yields stronger effects than the relational approach. Future research should focus on the long-term effect of relational approach for Chinese family where a stronger long-term effect could be expected since the relational enhancement strategy matches the interdependent Chinese culture where interpersonal relatedness is emphasized (Keller et al., 2006).

Another finding worth noticing is that a cognitive approach was not seen in any of the parenting programs. This might result from the lack of documentation. While we recognize some program brand often has a cognitive component (e.g., providing positive feedback to parents to promote mastery experience), we were unable to identify this component based on the information provided. It could also be that the cognitive approach is still relatively new in China. In line with our findings, techniques of cognitive approach were not mentioned in the latest Chinese reviews introducing parenting programs for disruptive child behavior to China (see Lin et al., 2013, for oppositional defiant disorder symptoms; see Pan et al., 2018, for ADHD symptoms). Only parenting programs with a relational or behavioral approach were discussed in these two reviews. Importantly, however, parental self-efficacy was discussed in these reviews as a possible parental outcome of parenting interventions. This suggests that although Chinese researchers see parental self-efficacy as an important construct, enhancing parental self-efficacy as an intervention approach is not yet common.

Practical Implications

Our findings support the use of parenting programs to reduce disruptive child behavior and improve parenting practices for Chinese families. More specifically, our findings support the use of parenting programs that teach parents behavioral management techniques (e.g., praise and time-out) over the programs that enhance parent-child relationship (e.g., promoting parental warmth) or using both behavioral and relational approaches for disruptive child behavior in Chinese context,

although the number of studies evaluating the relational approach and the integrative approach was too small for a rigorous test of differential effects.

In addition, while this study focused on children's disruptive behavior specifically, it is important in parenting programs to keep children's general well-being in mind—above and beyond disruptive behavior only. Programs may have additional goals, such as cultivating children's happiness, life satisfaction, and psychological strengths, and each is important for a positive development (Pollard & Lee, 2003). Having a close relationship with parents seems to play an important role in cultivating these elements that enable children to thrive (Cotterell, 1992; Nickerson & Nagle, 2004). In addition, a close parent-child relationship also smoothens parent-child interaction. There may be cases where adding relational enhancement components could increase the effects of behavior management programs such as in treatment settings where disruptive child behavior is more severe (Leijten et al., 2018). Therefore, we call for more research on the two approaches currently less used in Chinese programs (i.e., relational and cognitive approach), and on how to maximize the effects of behavioral approach for Chinese families, to support policy makers and practitioners making decisions about what parenting program components to implement in China.

Strengths and Limitations

The present study is the first study to systematically review evidence for the effectiveness of parenting programs for disruptive child behavior in China, a country with around 12 million children displaying disruptive behavior and with cultural traditions is distinctively different from Western cultures. Our findings confirmed that parenting programs for disruptive child behavior are effective in China, adding to the evidence base about the cross-cultural effectiveness of these programs. We also looked into different intervention approaches, which allowed us to test whether some approaches are more effective than others.

We used an RVE and a multilevel approach, two state-of-the-art methods to enhance robustness, accuracy, and power of our analyses. RVE accounts for the dependency of ESs within studies, even in a small sample (Tipton, 2015). Taking into account, this dependency allowed us to synthesize multiple relevant ESs and to model within-study variances. Therefore, we were able to keep all information instead of simply averaging ESs within one study (Hedges et al., 2010). Multilevel method was used to model between-study variances in the present study, which gave us a clear indication of the existence of potential moderators that should be further investigated in future research (Cheung, 2014).

Some limitations of our study warrant attention. One methodological limitation lies in the uneven numbers of studies using different approaches ($k = 19$ for behavioral and $k = 4$ for relational). The large difference in sample size between the two approaches indicates low power and inflated Type I errors (Rusticus & Lovato, 2014), meaning that there is less

possibility to detect true difference between behavioral approach and relational approach, and greater chances that any detected difference is false positive. This is indicated by the small sample corrected degrees of freedom ($df = 3.26$), less than four, comparing these two approaches (Tipton, 2015). Therefore, we interpret the difference between these two intervention approaches with caution and conservatively.

We also found some inconsistent reporting practices in the field, which might hinder the reliability of our findings. Specifically, some programs may adopt intervention approaches that we were unable to identify based on the information provided. Additionally, we were limited in comparing the exact effectiveness of each approach because some studies only provide a general description or name of the intervention (e.g., "parenting therapy"), making it difficult to carefully code which approach was used. That said, we coded the intervention approach in a reliable way, confirmed by the good interrater reliability. We recommend future parenting program evaluation studies to follow standard reporting guideline, such as Consolidated Standards of Reporting Trials (Glasziou et al., 2008), which promotes the reporting of five Ws (i.e., who, what, where, when, and why), allowing meta-analyses to include this information.

Conclusion

Parenting programs seem an effective intervention option to reduce Chinese children's disruptive behavior and to reduce harsh and inconsistent parenting practices and increase positive behavioral management in Chinese parents. In fact, the evidence as synthesized in our meta-analysis seems to suggest that ESs in Chinese families are at least as large as those typically found in Western families. We found evidence that a behavioral approach (i.e., changing child behavior through differential attention) may outperform a relational approach (i.e., changing child behavior through improved parent-child relationship quality). Our review provides an overview of research on parenting program for disruptive child behavior in China and adds to the evidence base demonstrating that parenting programs for disruptive child behavior are effective across cultures.

Authors' Note

Data are presented in Table 1. Code and other materials are available upon request from the first author.


Declaration of Conflicting Interests

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