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A systematic review of universal campaigns targeting child physical abuse prevention

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Abstract

The purpose of this review was to better understand the impact of universal campaign interventions with a media component aimed at preventing child physical abuse (CPA). The review included 17 studies featuring 15 campaigns conducted from 1989 to 2011 in five countries. Seven studies used experimental designs, but most were quasi-experimental. CPA incidence was assessed in only three studies and decreased significantly in two. Studies also found significant reductions in relevant outcomes such as dysfunctional parenting, child problem behaviors and parental anger as well as increases in parental self-efficacy and knowledge of concepts and actions relevant to preventing child abuse. The following risk factors were most frequently targeted in campaigns: lack of knowledge regarding positive parenting techniques, parental impulsivity, the stigma of asking for help, inadequate social support and inappropriate expectations for a child's developmental stage. The evidence base for universal campaigns designed to prevent CPA remains inconclusive due to the limited availability of rigorous evaluations; however, Triple-P is a notable exception. Given the potential for such interventions to shift population norms relevant to CPA and reduce rates of CPA, there is a need to further develop and rigorously evaluate such campaigns.

Introduction

Child maltreatment is a major public health problem that places children at an increased risk for acute injury as well as long-term negative mental, social, behavioral and physical health outcomes. For example, victims of child maltreatment report significantly higher rates of depression, post-traumatic stress disorder, anxiety, suicide, behavior problems, interpersonal challenges, decreased productivity, cognitive deficits and chronic diseases compared with non-victims [1–10]. Brain imaging and epigenetic studies speak to the damaging biological effects child maltreatment has on a child's developing brain and DNA [5, 11]. The economic burden of child maltreatment is estimated to cost an average of $210 012 per victim in the United States [12]. Early toxic stress and adverse experiences in childhood can set trajectories for poor health into adulthood that are linked with pervasive health disparities and public health problems, such as smoking, obesity, heart disease and stroke [2, 8, 10, 13, 14]. In 2011 in the United States, there were over 1500 fatalities from child maltreatment and nearly 700 000 substantiated cases [15, 16]. However, because so many cases go unreported, the true prevalence of child maltreatment is unknown.

To date, most child physical abuse and neglect prevention programs target select populations of high-risk individuals, outnumbering population-level or universal target programs by about two to one [17]. There is a strong evidence base for the

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effectiveness of such programs targeting selected populations, such as the Nurse Family Partnership home visitation program for first time Medicaid eligible mothers [18] and the Incredible Years Parenting Training Program for parents of children with conduct disorders [19], both of which have shown significant reductions in harsh parenting for program participants. However, the most effective of these programs are highly resource intensive and require high levels of participant involvement [20]. Less resource intensive population-level prevention strategies that target universal populations can serve as important complements to these programs.

According to a seminal article by Rose [21], population-level interventions have some advantages over strategies targeting selected or high-risk populations. First, they tend to focus on root causes of a problem that are highly prevalent in a population. Second, because behavior is contagious, population-level strategies help to enhance and ease the efforts of interventions targeting selected populations. Third, by focusing on highly prevalent risks in a population, they have the potential to have a large impact on population attributable risk. The usefulness of population-level educational strategies, such as media campaigns, for addressing and improving public health problems is well documented. They are frequently utilized for increasing awareness of important health issues as well as decreasing the prevalence of or preventing a behavior [22, 23]. Physical activity campaigns have raised public awareness of the issue and increased levels of physical activity [22]. Smoking [24, 25], drunk driving and alcohol-related crashes [26] have also declined as a result of media campaigns. Other examples include the VERB campaign to promote physical activity among 'tweens' [27], campaigns to impact eating habits [28] and the Truth campaign designed to reduce smoking among teens [29].

To be most effective, such prevention strategies should focus on reducing risk factors that are highly prevalent and modifiable. The Social Ecological Model (SEM) posits that such factors exist at multiple levels, ranging from the individual and interpersonal to broader community and societal levels [30]. Klevens and Whitaker [17] identified a number of risk factors addressed in primary prevention interventions for child physical abuse (CPA) and neglect and categorized them by SEM levels. At the individual level, they identified some key modifiable parent characteristics commonly addressed such as: emotional arousal/reactivity/impulsivity, attributional biases, inappropriate expectations, lack of empathy, substance abuse, poor parenting skills, lack of knowledge of parenting techniques and use of harsh discipline. Key modifiable family level factors reviewed included family conflict, stress and isolation. Neighborhood factors identified mostly tied in with social isolation perceived at the individual and family level including social disorganization, low social cohesion and lack of access to needed services and support. Just one risk factor was covered at the societal level: social tolerance or acceptance of abuse—or use of corporal punishment (CP) for purposes of child discipline. However, Klevens and Whitaker considered that this factor '... may be the most prevalent risk factor for child abuse in the United States (p. 371)'. Indeed, CP is a strong risk factor for CPA [31–33] as well as other poor outcomes in children [34, 35]. Further, a majority of children have experienced CP [36, 37] and most adults believe it is a necessary form of discipline [38]. Aligned with Klevens and Whitaker's review, and written nearly four decades before, Garbarino identified two necessary conditions for child maltreatment to occur: parental isolation from support systems and cultural support for the use of physical force and discipline with children [39]. Based on these reviews as well as the unique ability of universal campaigns to address societal level risk factors, we included in our review those campaigns that address the use of CP as well as CPA. With these prior works as a guide, we sought to identify key, modifiable and prevalent risk factors that were addressed by the campaigns in our review.

Within the field of child maltreatment prevention, many of these individual and family level risk factors have been addressed successfully within programs focused on selective or high-risk populations [e.g. 18, 40, 41], but less is known about the ability of programs focused on universal populations

to address these factors. Further, the majority of media campaigns within child abuse prevention have focused on child sexual abuse [42, 43]. Yet, population-level strategies to prevent CPA can help to overcome some barriers often associated with selective parenting programs such as transportation issues, time conflicts, costs and limited capacity to reach all parents in need. The use of media in particular could provide help to normalize parenting challenges, to model appropriate behaviors and for parents to learn anonymously [23]. Hence, there is a need to better understand what risk factors are targeted and how successfully, specifically in universal campaigns for CPA prevention.

This review will be the first to focus solely on the prevention of CPA via population-level interventions (i.e. focused on universal targets) with a media component. Reviews by Klevens and Whitaker [17], Mikton and Butchart [44] and MacLeod and Nelson [20], all differed from the current review in their inclusion of selective and/or indicated interventions and by addressing multiple types of abuse. Although maltreatment types are certainly correlated, etiologies and prevention strategies can vary substantially and hence are worth examining separately for each type of abuse. Similarly, although interventions targeting universal and selective or indicated populations might address some overlapping risk factors, approaches and strategies for these intervention types are likely to be quite different.

Our systematic review of universal CPA prevention interventions with a media component has two primary aims. The first aim is to examine existing evidence from outcome evaluations to assess the effectiveness of these interventions. As we anticipate a paucity of rigorous evaluation studies [e.g. randomized control trials (RCTs)], we expect a systematic review to be more appropriate than a meta-analysis. The second aim is to examine and assess key risk factors addressed, campaign messages used and formative and process data to provide formative research that can be used to inform and improve future universal CPA prevention campaigns. As the application of evidence-informed, universal interventions to CPA prevention is a relatively young and underdeveloped field, we anticipate that this review will yield preliminary but modest evidence of program effectiveness (aim 1). At this stage of field development, we expect our formative research to be of particular use to public health practitioners and researchers engaged in the development and testing of such universal interventions for CPA prevention (aim 2).

Methods

Search for relevant literature

A thorough systematic review was conducted through online search engines and journal databases between June 2012 and September 2012. We sought evaluation studies of interventions with a media campaign component focused on the prevention of CPA and/or CP among universal target populations. Keywords searched include: 'child physical abuse, corporal punishment, physical discipline, harsh parenting, harsh discipline, child maltreatment, shaken baby syndrome (SBS), physical punishment, spanking, smacking, child, violence, media, public campaign, positive parenting, intervention, program, prevention, and/or campaign'. Keywords were entered individually or in combination with others. During the search process, the term 'Triple P' was added to the list of keywords, given its large presence in this literature. (Triple P is a five-level intervention dedicated to providing parents with positive parenting skills and ways to manage child behavior problems [45]).

Two research assistants utilized five search methods to locate relevant evaluation studies. First, keyword(s) were entered into the following journal databases: PubMed, PsycINFO and a Tulane 'Cross Search' of the Social Science database consisting of ABI/INFORM Global, Academic Search Complete, Anthropology Plus, ERIC (EBSCO), JSTOR, PsycINFO, PubMed, Science Direct (Elsevier), SocINDEX and Sociological Abstracts and Health + Science database consisting of AGRICOLA, Biological Abstracts, Biological Sciences, CINAHL Plus, EMBASE (Elsevier), Global Health (Ovid Technologies), PsycINFO,

Pubmed, Science Direct (Elsevier) and Web of Science (ISI). Second, a similar approach was used in Google rather than a journal database. Third, literature reviews of general child abuse campaigns were examined for additional campaigns or evaluations. Fourth, health or public health organizations were entered into Google search engine and organization websites were scanned for relevant campaigns, including Centers for Disease Control and Prevention (CDC), National Institute of Health (NIH) and World Health Organization (WHO). Finally, we contacted 11 authors and/or sponsoring organizations for which we identified campaigns but no evaluations via our search methods. Three of the 11 responded and two new evaluations were identified. However, neither of them met our inclusion criteria. Primary study authors and/or sponsoring organizations of the campaigns also were contacted by phone and email to obtain campaign materials and additional information regarding the campaigns. Internet searches through Google and YouTube were conducted to locate campaign materials.

Eligibility criteria

First, the intervention had to focus on reducing or preventing CPA or CP. Second, the intervention had to be a population-level strategy such as a mass media campaign or other educational efforts focused on universal targets. Interventions included various forms of mass communication (e.g., TV, radio, billboards, posters, report cards) or were delivered via community services with broad population access (e.g. hospitals, pediatric offices or schools). Studies of Triple P were eligible only if they included an examination of the Level 1 media component of Triple P designed for universal targets. Finally, the study had to report outcome evaluation results.

Exclusion criteria

Interventions dedicated solely to sexual, verbal or emotional abuse and/or neglect were excluded as were all parent training and home visitation programs without a 'campaign' (i.e. media or mass communications) component or focus on universal targets (i.e. interventions targeting selected or indicated populations were excluded).

Article selection

Method 1 identified 24 articles and 16 campaigns. Method 2 identified four more articles and 10 other campaigns. Method 3 identified three additional articles and three more campaigns. Method 4 yielded no additional reports or campaigns. One more article was obtained using Method 5. In all, 29 different campaigns were identified and fully reviewed. After review, 17 articles that reported on evaluations of 15 campaigns, met our study criteria and were included in our final analysis [46–62]. As this is a formative review and not a formal meta-analysis, multiple evaluations of the same intervention were permitted and counted as separate articles.

Data extraction

Information relevant to this review was extracted from campaign materials and evaluation articles and entered into a 'data extraction table' (e.g. see [22]). The following information was retrieved for each campaign: name, purpose and/or mission, description, program theory, specific campaign messages, format, materials used, links to materials and any additional information. For each evaluation study, the following information was extracted: author, year, title, name of sponsoring organization, organization/author contact information, source with corresponding link, evaluation design, sample size, sample characteristics, relevant outcomes to CPA or CP, evaluation tools, findings and any additional information.

All studies were analyzed to identify risk factors that were targeted to meet campaign goals. In a systematic review of primary prevention interventions for CPA and neglect, 30 risk factors were identified that have been targeted in previous CPA interventions [17]. This framework was used in our review of risk factors. However, new constructs emerged from a thorough investigation of program theories in these studies. The intervention was considered to have addressed a risk factor if it was explicitly stated or addressed in the evaluation article, in another

article that described the campaign (e.g. [45, 63]), or in the actual campaign materials.

Results

Campaign descriptions

In total, 17 evaluation articles, featuring 15 separate campaigns, were analyzed and reviewed (Table I). The evaluated interventions were carried out in five countries, including the United States ($n = 9$), Australia ($n = 2$), United Kingdom ($n = 2$), New Zealand ($n = 2$), Canada ($n = 1$) and Japan ($n = 1$). Target audiences ranged from the general public to adults over the age of 18 years, parents, parents and caregivers with children of a certain age and caregivers. Implementation of the campaigns spanned a period of 12 years with the first campaign beginning in 1989 and the most recent campaign ending in 2011. Campaign durations ranged from 6 weeks to 4 months ($n = 3$), 1–2 years ($n = 11$) and 3–9 years ($n = 3$). Although all campaigns focused on reducing or preventing CPA or CP, some were dedicated to specific issues such as SBS or positive parenting. Five campaigns included at least the universal, Level 1 media component of Triple P [45].

A wide range of media was used in the campaigns including print, broadcast and online sources. Print media was widely used through billboards, newsletters, publications, posters, work books, compliance statements, pamphlets, resource guides, balloons, press releases, newspapers, handouts, postcards, street posters or bus advertisements ($n = 14$). Most campaigns used broadcast media such as public service announcements (PSAs) on TV, TV segments/episodes, videos, PSA videos, radio segments or PSAs on the radio ($n = 14$). Online media such as email, websites, web videos, online support or access to online resources was less common ($n = 3$). Several campaigns provided telephone support and toll-free helplines for fast access to counseling services and parent tips and to report cases of CPA ($n = 3$). Both pre-existing and novel materials were utilized by the campaigns. For example, two SBS campaigns used 'The Period of PURPLE Crying' materials that had already been implemented in healthcare settings [51, 62]. Other campaigns developed novel materials such as the 'STOP. LOOK. LISTEN' card that was attached to children's report cards [52].

Formative evaluation

Six studies (35.3%) reported formative evaluation procedures (Table II). Reported formative strategies included pre-testing of campaign messages with focus groups [46, 52, 62], meetings/discussions with key informants [46, 52, 61], review of literature and resources relevant to the intervention and message development [50, 54, 61] and tailoring materials to the sample population such as via matching literacy levels and pre-campaign surveys of attitudes [46, 52].

Process evaluation

Nearly all studies (94.1%) reported at least one form of process evaluation, such as the distribution of campaign materials, procedures such as trainings of professionals and measures for monitoring reach. Two of the most commonly assessed process evaluation methods were awareness of the campaign and recall of receiving intervention materials. Over 40% assessed awareness or recall of the campaigns at mid- or post-intervention. Rates of campaign awareness or recall ranged from a high of 85% [54] to a low of 17.1% [56]. Nearly all participants (92–98%) in two of the SBS studies [48, 49] confirmed that they received information about SBS.

Risk factors addressed in campaigns

Among the 17 studies, eight key risk factors were identified and definitions were established for each (Table III). Sample campaign messages also were selected to exemplify how campaigns targeted each risk factor. The most frequent risk factors addressed by the campaigns were lack of knowledge or skills regarding positive parenting techniques (82.4%), parental impulsivity (76.5%), lack of knowledge regarding child development or inappropriate expectations for a child's developmental stage (64.7%), inadequate social support (64.7%) and the stigma of asking for help (64.7%). Less commonly targeted

Table I. *Description of campaign designs and implementation*

Author name (references)	Campaign location	Name of campaign	Target audience	Campaign delivery	Media used	Evaluation design(s)	Sampling strategy	Sample
Andrews *et al.* [46]	South Carolina, United States	'Alcohol abuse. Drug abuse. Child abuse. One thing leads to another'	General public, families affected by drug and alcohol abuse	1995	• News features (3–5 min). • TV PSAs (30 s) • TV segment (30 s) • Billboards • Corporate newsletters/ publications • Posters at health and human service sites • Toll-free helpline	Time series Survey at pre- and mid- intervention	Track toll-free phone line activity Random digit dialing of SC numbers	All calls per month for 20 months $n = 792$
Calam *et al.* [47]	United Kingdom	'Driving Mum and Dad Mad' (Triple P model)	General public, parents	2 years, 2005–07	• 'Driving Mum and Dad Mad' TV show (30 or 50 min) • Self-help work book • Web support • Weekly email reminders • Access to Triple P providers	RCT (two intervention groups: standard and enhanced; both groups saw improvements, so findings for both groups were combined)	Convenience sample of parents via International TV website	$n = 723$ at baseline; $n = 274$ at post-test; $n = 259$ at 6-month follow-up
Deyo *et al.* [48]	Central Ohio, United States	'Love Me . . . Never Shake Me'	Parents of newborn babies	4 months, 2008	• 'Portrait of Promise'[a] video • Pamphlet • Compliance statement • Gift bag containing educational brochures, bib and magnet	Simple pre- and post-test Post-test only	Convenience sample of biological mothers of newborns via one of five hospitals	$n = 7051$ at baseline; $n = 5936$ at pre- and post-test; $n = 321$ at 3- to 4-month follow-up
Dias *et al.* [49]	Western New York, United States	'Prevent Shaken Baby Syndrome'	Parents with newborns in eight county region of New York State	5.5 years, 1998–2004	• Compliance statement • Educational posters • 1- page leaflet • 'Portrait of Promise' video (11 min)	Time series with comparison group	Track incidence of abusive head trauma, infants and children <36 months, 126 months in intervention region plus 6 years in comparison region of PA	Regional incidence of abusive head trauma

(continued)

Table I. *Continued*

Author name (references)	Campaign location	Name of campaign	Target audience	Campaign delivery	Media used	Evaluation design(s)	Sampling strategy	Sample
							Convenience sample of parents of newborns from 16 hospitals in western NY; captured 69% of live-births in region	$n = 65\,205$ baseline; 10% of baseline at 7-month follow-up
Evans et al. [50]	Florida, United States	*Florida Winds of Change*	General public	May 2009-June 2009	• PSA videos • 11-page parent resource guide	RCT	Convenience sample of FL residents at least 19 years of age with a child under 18 living in home obtained via eRewards, an online opinion panel	$n = 805$ baseline; $n = 591$ at 30-day follow-up
Fujiwara *et al.* [51]	Greater Tokyo (Kanagawa and Saitama), Japan	'The Period of Purple Crying'	Mothers of newborn babies	July 2009–January 2010	• PURPLE materials ○ 11-page booklet ○ DVD	RCT	Convenience sample of parents via maternity wards in two hospitals	$n = 230$ at baseline; $n = 201$ at follow-up
Mandell [52]	Baltimore, MD, United States	'STOP, LOOK, AND LISTEN'	Parents of school-aged children from 180 schools in Baltimore area	Four times a year at report card time for 9 years, 1990–99	• Report card • Helpline • TV PSA • Radio PSA	Time series	All students in Baltimore City Public Schools	$n = 180$ schools (~110 000 homes)
McLaren [54]	Communities in New Zealand	'Campaign for Action on Family Violence'	General public above 18 years age	2007–09	• TV ads • Video • Posters • Balloons • Media training • Local community funding • Resources and tools	Single survey at mid-intervention	Not reported	$n = 2444$
McLaren [53]	Christchurch, Porirua, Te	'Campaign for Action on	General public	2007–09	• TV ads	Single survey at mid-intervention		$n = 233$

(continued)

Table I. *Continued*

Author name (references)	Campaign location	Name of campaign	Target audience	Campaign delivery	Media used	Evaluation design(s)	Sampling strategy	Sample
	Tairawhiti and Waitakere, New Zealand	Family Violence'			• Video • Posters • Balloons • Media training • Local community funding • Resources and tools		Convenience sample of adults via intercept interviews	
Norton *et al*. [55]	Bexar County, TX, United States	'Any Baby Can (ABC)'	General public	1996–2003	Not reported	Two surveys (timing in relation to campaign ambiguous)	Random sample of adults living in Bexar County/San Antonio	$n = 477$ in 2001; $n = 457$ in 2002
Prinz *et al*. [56]	Southeastern state, United States	'Triple P—Positive Parenting Program'	Families with kids who have a child between ages 0 and 12 years	2 years, 2009–11	Triple P—Level 1 media components: • Newspaper • Radio PSAs • Community events • Newsletters • Press releases Other Triple P Components: • Consultations (20 min) • Parenting seminars (90 min) • Consultations with parent training (20 min) • Individual parent trainings (90 min) with home visits (90 min) • Group parenting sessions (2 h) with telephone sessions (15–30 min)	RCT	Eighteen medium sized counties (50 000 to 175 000 people), controlling for county population size, poverty rate and child abuse rate	$n = 18$ counties

(continued)

Table I. *Continued*

Author name (references)	Campaign location	Name of campaign	Target audience	Campaign delivery	Media used	Evaluation design(s)	Sampling strategy	Sample
Sanders *et al.* [57]	United Kingdom	'Driving Mum and Dad Mad' (Triple P model)	General public, parents	2 years, 2005–07	• TV episodes of Driving Mum and Dad Mad[b] (30 or 50 min) • Self-help work book • Web support • Weekly reminders • Access to Triple P providers	RCT (standard versus enhanced intervention groups; statistical findings reflect improvement of enhanced over standard condition)	Convenience sample of parents of children ages 2–9 years recruited via the International TV website, other mass media strategies and word of mouth	$n = 454$ at baseline; $n = 174$ at post-test $n = 174$ at 6-month follow-up
Sanders *et al.* [58]	Metropolitan area in Australian capital city, Australia	'Families' (Triple P model)	Parents of young children	6 weeks	• TV episodes of Families[c] (20–30 min) featuring a celebrity family enrolled in Triple P ○ Segments (20–30 min) featuring parental involvement in school, family issues, animal care, statistics on family issues and Triple P session (5–7 min) • Parenting tips handouts	RCT	Convenience sample of parents of children aged 2–8 years via daily newspapers and brochures at child care centers	$n = 56$
Sanders *et al.* [59]	Brisbane, Australia (intervention); Melbourne, Sydney, Australia (control)	'Every Family' (Triple P model)	Parents of young children	2005	Triple P—Level 1 media components: • Newspaper articles • Handouts at public venues • TV PSAs • TV segments • Radio segments and broadcasts • Video clips • Online resources	Non-equivalent groups, pre- and post-test	Random sample of parents of children aged 4–7 years from 20 communities (10 intervention and 10 control)	$n = 2999$ at baseline; $n = 3004$ at 2-year follow-up

(continued)

Table I. *Continued*

Author name (references)	Campaign location	Name of campaign	Target audience	Campaign delivery	Media used	Evaluation design(s)	Sampling strategy	Sample
					• TV episodes of 'Every Family'[d], a show featuring parents enrolled in Triple P Other Triple P Components: • Optional seminar ○ Seminar series (90 min) ○ Triple P newsletters ○ Optional group Triple P ○ Parenting sessions (2 or 8 h) ○ Education in workplace ○ Professional development sessions • School briefings (30 min) of 'Every Family' • Primary care strategy • Parenting sessions (20–30 min)			
Scholer *et al.* [60]	Nashville, TN, United States	'Play Nicely'	Caregivers of children aged 12 months to 5 years	2 months, 2010	• Video available in English or Spanish (5–10 min)	RCT	Convenience sample of parents of children aged 12 months to 5 years via well child visits	$n = 259$ at baseline; $n = 258$ at immediate follow-up
Showers [61]	Franklin County, OH, United States	'Don't Shake the Baby'	Parents of newborn babies	August 1989–July 1990	• Envelopes containing the following: ○ 'Crying: "What Should I Do" Card'[e]	Single survey at post-intervention	Convenience sample of parents of newborns from six hospitals	$n = 3293$ (21% of all eligible)

(continued)

Table I. *Continued*

Author name (references)	Campaign location	Name of campaign	Target audience	Campaign delivery	Media used	Evaluation design(s)	Sampling strategy	Sample
					○ Self-addressed stamped postcard			
Stewart *et al.* [62]	London, Ontario, Canada	'The Period of PURPLE Crying'	Parents of newborn babies	2008–10	• Commitment statement • PURPLE[f] materials (available in English and Spanish) ○ 11-page booklet ○ DVD (12 min) • Billboards • Street posters • Posters in 'transit shelters' • Bus advertisements • Digital ads in movie theatres • Radio PSAs • Radio segments with medical professionals (10 min) • Posters in medical and education centers	Simple pre- and post-intervention Single survey at post-intervention	Convenience sample (assumed) of RNs trained at birthing centers Convenience sample of parents of newborns at birthing centers	n = not reported n = 10 520

[a]'Portrait of Promise': a video dedicated to raising awareness of shaken baby syndrome (SBS); [b]'Driving Mum and Dad Mad': a TV series featuring families who are participating in Triple P-Positive Parenting Program; [c]*Families:* A TV series featuring families who are participating in Triple P- Positive Parenting Program; [d]*Every Family*: A TV series featuring families who are participating in Triple P- Positive Parenting Program; [e]Crying: What Should I Do? Card: A card with tips on positive ways to deal with infant crying; [f]PURPLE materials: A set of materials from *The Period of Purple Crying* campaign to prevent SBS.

Table II. *Evaluation procedures and relevant outcomes*

Author	Formative evaluation	Process evaluation	Outcome evaluation			
			Design	Indicator	Findings	Statistical significance
Andrews *et al.* [46]	• Pre-testing with focus groups • Discussions with project staff, creative consultants and advisory board • Pre-campaign telephone survey of attitudes toward child abuse and ways to help	**Materials:** • Seven days of news features (3–5 min) • 30 days of four TV PSAs (30 s) • TV segment (30 s) • 148 billboards • Corporate newsletters/ publications • Posters at health and human service sites • Toll-free helpline **Procedures:** • Trained professionals to provide appropriate help when services were sought by residents **Monitoring:** • TV talk show received higher ratings than regular TV program • 61% of respondents were aware of campaign slogan at mid-point • 88.8% of those aware of the slogan had seen the ads on television	Simple time series	**Behaviors:** • Calls to helpline • Calls to helpline regarding alcohol and drug abuse • Calls to helpline regarding child abuse	• 61.9% ↑ from 10 months pre-intervention to 10 months post-intervention • 190% ↑ from 10 months pre-intervention to 10 months post-intervention • 70% ↑ from 10 months pre-intervention to 10 months post-intervention	None reported for this study
			Survey at pre- and mid-intervention	**Attitudes:** • Likelihood of child abuse/neglect after parental alcohol or other drug abuse	• 85% said 'very likely' • 14% said 'somewhat likely' • No significant differences from pre- to mid-intervention	
				• Likelihood that children will be abused/ neglected if parents seek help for alcohol or other drug use/ abuse	• 17% said 'very likely' • 53% said 'somewhat likely' • No significant differences from pre- to mid-intervention	
				• Likelihood of helping a family where a child was abused/ neglected as a result of parent's alcohol or other drug problem	• 47% said 'definitely' • 33% said 'very likely' • No significant differences from pre- to mid-intervention	
				Behaviors/intentions: • Past year contacted or considered contacting hotline or agency to help an abused/neglected child	• 91% said 'no' • No significant differences from pre- to mid-intervention	

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation: Design	Indicator	Findings	Statistical significance
Calam *et al.* [47]	• Not reported	**Materials for Condition 1:** • Six episodes of 'Driving Mum and Dad Mad' TV show (30 or 50 min) featuring parents enrolled in Triple P ○ 8-week course ○ Four sessions (2 h) ○ 3 weeks of telephone consultations (30 min each) ○ Final group session (2 h) **Materials for Standard Condition 1:** • Condition 1 materials • Weekly email reminders **Materials for Enhanced Condition 1:** • Condition 1 materials • Self-help workbook • Web support: ○ Parenting tip handouts ○ Audio ○ Video • Weekly reminders • Access to Triple P providers **Materials for Condition 2 (control):** • Five episodes (60 min); therapeutic dose >6 episodes **Monitoring:** • Higher participation rates in standard versus enhanced conditions; $\chi^2 = 3.20$, $df = 1$, $P < 0.05$	RCT (two intervention groups: standard and enhanced; both groups saw improvements, so findings for both groups were combined)	**Behaviors:** • Child behavior problem intensity (ECBI)[a]	• ↓ from pre- to post-intervention ($d^h = 0.44$; CI = 0.28–0.60) • ↓ from pre- to follow-up ($d = 0.53$; CI = 0.35–0.72)	$t = 9.5$, $P < 0.001$ $t = 9.6$, $P < 0.001$
				• Child behavior problems frequency (ECBI)	• ↓ from pre- to post-intervention ($d = 0.55$; CI = 0.39–0.72) • ↓ from pre- to follow-up ($d = 0.65$; CI = 0.46–0.84)	$t = 11.2$, $P < 0.001$ $t = 10.6$, $P < 0.001$
				• Dysfunctional parenting (PS[b] measure)	• ↓ from pre- to post-intervention ($d = 0.58$; CI = 0.42–0.75) • ↓from pre- to follow-up ($d = 0.69$; CI = 0.50–0.88)	$t = 11.9$, $P < 0.001$ $t = 12.5$, $P < 0.001$
				Beliefs: • Parental self-efficacy (PTC[c] measure)	• ↑ from pre- to post-intervention ($d = 0.64$; CI = 0.46–0.81) • ↑ from pre- to follow-up ($d = 0.91$; CI = 0.72–1.11)	$t = 12.6$, $P < 0.001$ $t = -14.6$, $P < 0.001$
				Other Indicators: • Parental depression, anxiety and stress (DASS)[d]	• ↓ from pre- to post-intervention ($d = 0.22$, CI = 0.06–0.39) • ↓ from pre- to follow-up ($d = 0.25$, CI = 0.060.44)	$t = 4.7$, $P < 0.001$ $t = 4.3$, $P < 0.001$
				• Parental anger intensity (PAI[e] measure)	• ↓ from pre- to post-intervention ($d = 0.37$; CI = 0.19–0.55) • ↓ from pre- to follow-up ($d = 0.73$; CI = 0.53–0.93)	$t = 6.8$, $P < 0.001$ $t = 11.4$, $P < 0.001$
				• Parental anger frequency (PAI measure)	• ↓ from pre- to post-intervention ($d = 0.47$; CI = 0.30–0.65) • ↓ from pre- to follow-up ($d = 0.49$; CI = 0.29–0.68)	$t = 9.5$, $P < 0.001$ $t = 7.5$, $P < 0.001$
				• Parenting problem—intensity (PPC[f])	• ↓from pre- to post-intervention ($d = 0.21$, CI = 0.03–0.38) • ↓ from pre- to follow-up ($d = 0.30$, CI = 0.10–0.49)	$t = 4.0$, $P < 0.001$ $t = 4.0$, $P < 0.001$
				• Parenting problem—problem (PPC measure)	• ↓from pre- to post-intervention ($d = 0.34$, CI = 0.17–0.51) • ↓ from pre- to follow-up ($d = 0.41$, CI = 0.22–0.59)	$t = 6.1$, $P < 0.001$ $t = 6.5$, $P < 0.001$
				• Relationship quality (RQI[g] measure)	• ↓from pre- to post-intervention ($d = 0.04$, CI = −0.14 to 0.21) • ↓ from pre- to follow-up (d = 0.04, CI = −0.22–0.15)	• Not statistically significant

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation: Design	Outcome evaluation: Indicator	Outcome evaluation: Findings	Outcome evaluation: Statistical significance
Deyo *et al.* [48]	Not reported	**Procedures:** • Training for nurses **Materials:** • 'Portrait of Promise' video about SBS • Pamphlet regarding SBS • Commitment statement (CS)[i] • Gift bag with bib, magnet and educational brochures **Monitoring during intervention:** • 7051 signed CS • 96% of mothers already knew about dangers of shaking • 97% considered the program helpful • 98% would recommendthe information to new parents **Monitoring at follow-up:** • 92% independently recalled receiving SBS information • 98% recalled receiving SBS information when prompted • 62% did not receive SBS education from pediatrician or other source between post-test and follow-up 38% were educated about SBS at post-delivery by one of the following: ○ home visitor, parenting class, billboard or radio (52%) ○ pediatrician or primary care provider (40%)	Simple pre- and post-test Post-test only	**Knowledge:** • SBS	• 74% ↑ to 80% said that 'It's ok to let an infant cry' • Total pre- [23.18 (1.8)] versus post-test [23.28 (2.1)] difference **(Post-test only)** • 97% correctly defined SBS • 97% correctly identified the physiological results of shaking • 94% knew what to do when they were stressed while taking care of the baby **(Post-test only)** • 36% practiced self-coping techniques • 79% practiced soothing infant techniques • 92% found soothing infant techniques helpful • 9% accessed community services	$t = -3.67$, $P < 0.05$ $t = 2.26$, $P < 0.05$ N/A N/A
				Behaviors: • Self-coping • Use of soothing techniques • Access of community support services		

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation			
			Design	Indicator	Findings	Statistical significance
Dias *et al.* [49]	Not reported	**Procedures:** • 1 h training of health professionals **Materials:** • One page leaflet read aloud • 'Portrait of Promise' video (11 min) • Educational posters • Commitment statement **Monitoring:** • Parents of 69% of live-births in eight county region signed commitment statements • Approximately 75–100% of parents of newborns received written or verbal campaign materials; <67% viewed the video **Monitoring at pre-campaign:** • 93% of parents were already aware of the dangers of shaking • 96% of commitment statements were signed by mothers; 76% by fathers **Monitoring at post-campaign:** • 92% found information helpful • 95% would recommend materials to other parents • 10% had positive comments about program • 95% remembered receiving the information at follow-up	Time series with comparison group	**Behaviors:** • Incidence of abusive head injuries	• 47% ↓ from pre- to post-intervention	$P = 0.02$

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation			
			Design	Indicator	Findings	Statistical significance
Evans *et al.* [50]	• Researched social marketing methods • Message framing based on the four P's (place, product, price and promotion) • Gathered information from parenting resource booklets	**Materials:** • PSA videos • 11-page parenting guide **Procedures:** • Assessed reactions to campaign materials from participants with previous exposure to stimuli	RCT	**Knowledge:** • Child development	• ↑ on 2 out of 5 outcome measures from pre- to post- intervention ○ 'Some children might not be ready for potty training until they are over 3 years old'. ○ 'Babies are not safe when they sleep with their parents'.	 OR = 1.74,CI (1.13–2.68); $P = 0.01$ OR = 1.56, CI (1.02–2.39); $P = 0.04$
				• Non-violent developmentally appropriate child discipline	• No significant differences	
				• Community resources	• ↑ on two of two outcome measures from pre- to post-intervention ○ '1-800-FLA-Love is a number any parent can call to get information about parenting'. ○ 'I know where to get information about parenting in my community'.	 OR = 3.67, CI (2.00–6.74), $P < 0.0001$ OR = 1.79, CI (1.14–2.79), $P = 0.01$
				Beliefs on: • Preventing child abuse and neglect	• ↑ on one of five outcome measures from pre- to post-intervention ('Babysitting or running errands for a few hours for parents is a way to prevent child abuse and neglect'.)	OR = 2.20, CI (1.46–3.33), $P = 0.0002$
				Attitudes: • Motivation to prevent child abuse/ neglect	• ↑ on one of three outcome measures from pre- to post-intervention ('I am willing to assist parents by watching their children occasionally'.)	OR = 1.85, CI (1.15–2.98), $P = 0.01$
				Behaviors: • Action to prevent child abuse and neglect	• ↑ on one of three outcome measures from pre- to post-intervention ('In the past 30 days, I assisted parents by watching their children'.)	OR = 1.64, CI (0.99–2.70), $P = 0.05$

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation			
			Design	Indicator	Findings	Statistical significance
Fujiwara *et al.* [51]	Not reported	**Materials:** • Telephone survey • Baby's Day Diary for parents to record their baby's behaviors • Period of PURPLE Crying Prevention materials ○ 11-page booklet ○ DVD	RCT	**Knowledge of:** • Baby crying • Baby shaking **Behaviors:** • Response to general baby crying • Response to inconsolable crying • Use of self-talk strategies • Shared information with other caregivers about: ○ Crying ○ Walking away ○ Shaking • Contact when child distressed • Pick up events • Walk away events **Other Indicators:** • Levels of frustration	• Difference = 3.0; 95% CI (1.0–4.9) • No significant differences • No significant differences • No significant differences • No significant differences • No significant differences • Difference = 18.3; 95% CI (7.4–29.1) • No significant differences • No significant differences • No significant differences • Rate Ratio = 4.77, 95% CI (1.07–21.18) (Intervention group more likely to walk away than control group) • No significant differences	$t = 2.94$, $P = 0.004$ $t = 3.33$, $P = 0.0001$ $P = 0.04$
Mandell [52]	• Interviews with school personnel • Pre-testing of materials via principals and parent focus groups • Materials adjusted for second/third grade reading level for 200 000 illiterate residents	**Materials:** • 'STOP, LOOK, LISTEN' insert with report card at each of the four report card periods[j] • TV and radio PSAs • Tutoring and academic support • Speeches by commission members • Helplines **Monitoring:** • ↑ reports of positive parental attitudes, parent visits and improved communication between parents and teachers at all 180 schools	Simple time series	**Behaviors:** • Calls to helplines • Incidence of child abuse reports related to report cards	• 400% ↑ at each report card period compared with a normal week • 97.7% ↓ from pre- to post-campaign	Not reported

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation			
			Design	Indicator	Findings	Statistical significance
McLaren [54]	• Background research on the role of mass media in social issue campaigns	**Materials:** • TV ads • Video • Posters • Balloons • Media training • Local community funding • Resources and tools **Monitoring:** • 85% recalled seeing or hearing a campaign about family violence • 38% of those who had seen or heard a campaign described the 'It's not OK' campaign • 33% of those who had seen or heard a campaign were not influenced by it	Single survey at mid-intervention	**Beliefs on:** • Definitions and awareness of family violence	• Justifications for male violence toward female partner: ○ e.g. 11% agreed it was ok if 'She has physically abused their child'. • Justifications for a parent hitting their child: ○ e.g. 51% agreed, 'If the child is about to run across a busy road'. ○ e.g. 30% agreed, 'If the child hits another child'. ○ e.g. 30% agreed, 'If the child is having a tantrum'. • Child abuse and children who witness violence: ○ e.g. 95% agreed, 'When parents thrash or beat their children, the children experience more harm than good'. ○ e.g., 81% agreed, 'When parents smack their children regularly, the children experience more harm than good'. ○ e.g. 95% agreed, 'Children learn better by examples than by punishment'.	N/A
				Attitudes toward: • Family violence	• Family violence: ○ 24% reported a change in views on family violence since the campaign was launched • Self-restraint: ○ e.g. 96% agreed, 'It's a parent's duty to manage their own stress so they don't lose control with their child'. • Aggression: ○ e.g. 5% agreed, 'Sometimes hitting is the only way to express your feelings'. • Family structure and gender-roles: ○ e.g. 99% agreed, 'Children should be respected as human beings'. ○ e.g. 34% agreed, 'Children should learn to obey without question'. • Community involvement: ○ e.g. 95% agreed, 'Protecting children is the responsibility of every adult in the community'.	N/A

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation: Design	Outcome evaluation: Indicator	Outcome evaluation: Findings	Outcome evaluation: Statistical significance
					○ e.g. 28% agreed that parents should be able to decide how they treat their kids ○ e.g. 96% would likely intervene in a situation, 'If you see suspicious bruises on the child of a friend or family member'.	
				• Likelihood of taking action against family violence	• e.g. 59% would contact the police • e.g. 50% would contact social welfare	
McLaren [53]	Not reported	**Materials:** • TV ads • Video • Posters • Balloons • Media training • Local community funding • Resources and tools • 11 weeks of ads in September 2007 • 3 weeks of ads in July 2007, December 2008 and January 2009 **Monitoring:** • The majority of participants were aware of the campaign ads • 75% of participants recalled the campaign without being prompted • The majority of participants recalled the campaign when prompted • The majority of participants reported greater awareness of family violence • 'It's not OK' was most recalled message • Campaign's influence was not able to be distinguished from other violence efforts in the community	Single survey at mid-intervention	**Beliefs on:** • Family violence **Attitudes towards:** • Motivation to prevent family violence **Behaviors:** • Change in action to prevent family violence	• 50% of participants ↑ positive beliefs pre- to mid-intervention • 25–50% of participants were thinking differently about family violence from pre- to mid-intervention • Participants reported friends and family as the main influences on beliefs • Some service users commented that family violence shifted from a private to public issue from pre- to mid-campaign • Participants, service users and service providers reported violence's impact on children as the main motivator to prevent violence from pre- to mid-campaign • Service users identified support from family services as a motivator to prevent violence from pre- to mid-campaign • Participants had more than one conversation about family violence from pre- to mid-intervention • 25% of participants made more than one attempt to stop family violence; 50% of these respondents identified the campaign as the primary motivator from pre- to mid-intervention • The campaign validated the efforts of some service users and providers to prevent violence • Service providers saw ↑ in users from pre- to mid-intervention • Service providers reported ↑ in collaboration between providers from pre- to mid-intervention	N/A

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation			
			Design	Indicator	Findings	Statistical significance
Norton *et al.* [55]	Not reported	Not reported	Two surveys (timing in relation to campaign ambiguous)	**Knowledge of:** • SBS **Attitudes toward:** • Mild shaking	• No significant differences from 2001 to 2002 • No significant differences from 2001 to 2002	N/A N/A
Prinz *et al.* [56]	Not reported	**Procedures:** • 69 Triple P courses for 649 service providers **Monitoring:** • 17.1% of IG was aware of Triple P • Between 8883 and 13560 families participated in Triple P **Materials for Triple P-Level 1 media component:** • 21 newspaper articles • 185 press releases • 63 local newspaper stories • 26 000 newsletters • 37 radio PSAs • 24 community events **Materials for other Triple P components:** • 1–2 consultations (20 min) • Three parenting seminars (90 min) • Four consultations with parent training (20 min) • 10 individual parent trainings (90 min) with home visits (90 min) • Five group parenting sessions (2 h) with three telephone sessions (15–30 min) • Enhanced 10 individual sessions of parent training (90 min) with home visits (90 min) • Enhanced five group parenting sessions (2 h) with three telephone sessions (15–30 min)	RCT	**Behaviors:** • Substantiated child maltreatment • Child out-of-home placements • Child maltreatment injuries	• $d = 1.09$ (translates into 688 fewer cases per 100 000) • $d = 1.22$ (translates into 240 fewer cases per 100 000) • $d = 1.14$ (translates into 60 fewer cases per 100 000)	$t = 2.09$; $df = 16$; $P < 0.03$ $t = 2.60$; $df = 16$; $P < 0.01$ $t = 2.36$; $df = 16$; $P < 0.02$

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation: Design	Indicator	Findings	Statistical significance
Sanders *et al.* [57]		**Materials:** • Six episodes of TV show 'Driving Mum and Dad Mad' (30 min) or five episodes (60 min); TV show features parents enrolled in Group Triple P: ○ 8-week course ○ Four sessions (2 h) ○ 3 weeks telephone consultations (30 min) ○ Final group (2 h) • Triple P self-help workbook • Parenting web support: ○ Audio/video clips ○ Documents ○ Email helpline • Weekly reminders • Access to Triple P providers **Monitoring:** • IG was more satisfied than CG; F (1,147) = 6.58, $P < 0.05$ • Differences between completers and non-completers of the IG ○ Non-completers reported ↓ dysfunctional parenting; F (1, 436) = 13.196, $P < 0.01$ ○ Non-completers had ↑ self-efficacy; F (1.444) = 3.752, $P = 0.05$	RCT (standard versus enhanced intervention groups; statistical findings reflect improvement of enhanced over standard condition)	**Behaviors:** • Child disruptive behaviors (ECBI) • Dysfunctional parenting (PS measure) **Beliefs:** • Parental self-efficacy (PTC measure) **Other Indicators:** • Parental depression, anxiety and stress (DASS) • Parental anger (PAI measure) • Parental conflict regarding: child-rearing (PPC measure) • Relationship quality (RQI measure)	• ↓ from pre- to post-standard intervention ($d = 0.38$; CI = 0.08–0.67) • ↓ from pre- to post-enhanced intervention ($d = 0.63$; CI = 0.30–0.95) • ↓ from pre- to post-standard intervention ($d = 0.46$; CI = 0.17–0.75.) • ↓ from pre- to post-enhanced intervention ($d = 0.67$; CI = 0.34–0.99) • ↑ from pre- to post-standard intervention ($d = 0.58$; CI = 0.28–0.87) • ↑ from pre- to post-enhanced intervention ($d = 0.66$; CI = 0.31–1.00) • ↓ from pre- to post-standard intervention ($d = 0.20$; CI = 0.09–0.50) • ↓ from pre- to post-enhanced intervention ($d = 0.33$; CI = 0.00–0.67) • ↓ from pre- to post-standard intervention ($d = 0.37$; CI = 0.05–0.68) • ↓ from pre- to post-enhanced intervention ($d = 0.58$; CI = 0.22–0.94) • ↓ from pre- to post-standard intervention ($d = 0.13$; CI = 0.17–0.42) • ↓ from pre- to post-enhanced intervention ($d = 0.43$; CI = 0.07–0.78) • ↑ from pre- to post-standard intervention ($d = 0.15$; CI = 0.15–0.46) • ↑ from pre- to post-enhanced intervention ($d = 0.01$; CI = 0.35–0.38)	$F = 4.26$, $P < 0.05$ (enhanced vs. standard condition) $F = 4.28$, $P < 0.05$ (enhanced vs. standard condition) NS[k] NS NS $F = 6.90$, $P < 0.05$ (enhanced vs. standard condition) NS

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation			
			Design	Indicator	Findings	Statistical significance
Sanders *et al.* [58]	Not reported	**Materials:** • 12 episodes (20–30 min) of 'Families' featuring a celebrity family enrolled in Triple P: ○ 6 segments (20–30 min) featuring parental involvement in school, family issues, animal care, statistics on family issues and Triple P session (5–7 min) • 12 parenting tips handouts • Episode checklist to track the videos viewed **Monitoring:** • Participants gave average acceptability rating of 4.74 out of 6	RCT	**Behaviors:** • Child behavior problems—intensity (ECBI) • Child behavior problems—frequency (ECBI) • Dysfunctional parenting (PS measure) **Beliefs:** • Parental competence (PSOC[l] measure) **Other indicators:** • Parental anxiety, depression and stress (DASS) • Parental conflict regarding child-rearing (PPC measure)	• No significant differences • 5.56 (Mean difference reduction) • No significant differences • 3.51 (Mean difference improvement) • No significant differences • No significant differences	 F (1,56) = 7.43, $P < 0.01$ F (1,53) = 5.81, $P < 0.019$
Sanders *et al.* [59]	Not reported	**Procedures:** • 375 practitioners attended 2–5 days of training and 1–2 days of accreditation in Triple P **Materials for Triple P-Level 1 media components (i.e. Level 1):** • 58 newspaper articles • Handouts at public venues • Access to helplines • 48 Radio segments and broadcasts • 29 TV segments • TV PSAs • 6 TV episodes of 'Every Family', a show featuring parents enrolled in Triple P • Online resources **Materials for other Triple P components:** • Optional seminar	Non-equivalent groups, pre- and post- test	**Behaviors:** • Child behavior problems (SDQ[m]) • Parenting strategies **Beliefs:** • Parental confidence **Other indicators:** • Parental depression • Parental stress • Parental social support	• Difference between groups on two out of seven outcome measures ○ Reduced emotional symptoms ○ Reduced total difficulties • Difference between groups on two out of six outcome measures ○ Increase in appropriate parenting strategies for misbehavior ○ Decrease in inappropriate parenting for misbehavior • No significant difference • 6.5% ↓ (Mean difference) • 1.5% ↓ (Mean difference) • No significant difference	 $\chi^2 = 4.97$, $P = 0.026$ $\chi^2 = 4.78$, $P = 0.029$ $\chi^2 = 4.45$, $P = 0.035$ $\chi^2 = 4.24$, $P = 0.039$ $\chi^2 = 7.673$, $P = 0.006$ $\chi^2 = 4.734$, $P = 0.03$

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Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation: Design	Indicator	Findings	Statistical significance
		• Three seminar series (90 min) • Six Triple P newsletters • Optional group Triple P • Four parenting sessions (2 h) or one session (8 h) • Education in workplace • Professional development sessions • School briefings (30 min) of 'Every Family' • Primary care strategy • 3–4 parenting sessions (20–30 min) **Monitoring:** • 10% of interviews were monitored for quality control • Website had 1750 hits • IG 35.8% more aware of Triple P than CG $\chi^2 = 411.13$, $P < 0.001$ • 5.4% more parents in IG than CG had participated in Triple P before; $\chi^2 = 48.93$, $P < 0.001$				
Scholer *et al.* [60]	Not reported	**Materials:** • Video available in English or Spanish (5–10 min) • Parents viewed at least four parenting strategies	RCT	**Intentions:** • Intervention's helpfulness in discipline plans • Intervention's helpfulness in plans to discipline by demographics • Future discipline plans	• Intervention group was 12 times more likely to be helped than control group • Spanish speakers in intervention group were eight times more likely to be helped than Spanish speakers in the control group • Intervention group planned to use these six (out of eight) strategies more often than the control group ○ explain why hurtful behavior is wrong (19% difference) ○ talk to the child (14% difference) ○ use timeout (13% difference) ○ redirect behavior (9% difference)	$P < 0.001$ $P < 0.001$ $P < 0.001$ $P < 0.001$ $P < 0.001$ $P < 0.001$

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation			
			Design	Indicator	Findings	Statistical significance
					○ set the rule (5% difference) ○ praise for good behavior (4% difference) • Intervention group planned to use these three (out of four) strategies less often than the control group ○ say 'no' (16% difference) ○ use timeout (10% difference) ○ spank (9% difference)	$P < 0.05$ $P < 0.05$ $P < 0.001$ $P < 0.001$ $P < 0.001$
Showers [61]	• Review of literature • Meetings with representatives from six hospitals with licensed maternity units • Meetings and orientation with maternity unit staff	**Materials:** • 15 708 6' × 9' envelopes containing the following: ○ 5' × 8' 'Crying: "What Should I Do" Card' with information on infant shaking, parenting tips and facts about infant crying ○ Self-addressed stamped postcard for responding about the information distributed **Monitoring:** • 21% of parents returned the postcards post-discharge • 85% of non-white parents and 75% of white parents rated the information as helpful • 91% recommended that other parents should read the materials	Single survey at post-intervention	**Knowledge of:** • Dangers of shaking babies **Attitudes toward:** • Intention to shake babies	• 98% correctly answered that 'Shaking can cause brain damage or kill a baby'. • 61% of non-white parents and 46% of white parents said they were less likely to shake their babies after reading the program materials • 0% of parents said 'I still don't think shaking a baby is dangerous'.	N/A

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation			
			Design	Indicator	Findings	Statistical significance
		• 57% agreed, "I learned more about the danger of shaking a baby."				
Stewart *et al.* [62]	• Pre-testing of campaign messages through focus groups and intercept interviews	**Procedures:** • Developed 'descriptive epidemiologic profile of SBS cases' • Training of RNs **Materials:** • Commitment statement to practice safe parenting and to educate others • PURPLE materials ○ 11-page booklet ○ DVD (12 min) • Supplemental Materials for Dose 1: ○ Distribution of PURPLE materials by RNs at birthing center ○ Discussions with RNs • Supplemental Materials for Dose 2: ○ Home visits for Dose 1 follow-up or initial distribution of materials for parents who did not receive them in Dose 1 • Supplemental Materials for Dose 3: 'PURPLE normalcy media campaign' in London, ON ○ Five billboards ○ Four street posters ○ Posters in six 'transit shelters' ○ Six bus advertisements ○ Two digital ads in movie theatres ○ Radio PSAs	Simple pre-post Single survey at post-intervention	**RN's knowledge of:** • SBS and crying patterns **Parent's attitudes toward:** • Each message's importance	• 47% ↑ from pre- to post-training • Percent of parents rating the following message as most important ○ (47.2%) What to do if crying becomes frustrating ○ (44.4%) Infant crying patterns ○ (32.9%) Dangers of shaking a baby ○ (30.8%) Strategies to comfort crying baby	$P < 0.001$ N/A

(continued)

Table II. *Continued*

Author	Formative evaluation	Process evaluation	Outcome evaluation			
			Design	Indicator	Findings	Statistical significance
		○ Five radio segments with medical professionals (10 min) ○ 1000 posters in medical and education centers **Monitoring:** • 97% of RNs were satisfied with training • 88% of RNs felt prepared to share information with patients • 78% of RNs were confident in the program's relevancy to their daily responsibilities • 94% of RNs were confident in the program's ability to help parents • 93% of RNs were confident in the program's ability to decrease SBS • 93% program compliance for Dose 1 • 92% of parents completed the commitment statement • 93% of parents found the program helpful				

[a]ECBI, Eyberg Child Behavior Inventory: questionnaire that measures parents' perceptions of their child's behavior; [b]PS, Parenting Scale: questionnaire on dysfunctional parenting; [c]PTC, Parenting Tasks Checklist: checklist on confidence in parenting skills; [d]DASS, Depression Anxiety Stress Scales: assessment of adults' depression, anxiety and stress levels; [e]PAI, Parenting Anger Inventory: questionnaire on the intensity and frequency of parental anger during child-related scenarios; [f]PPC, Parenting Problem Checklist: measure of parental conflict regarding child-rearing issues; [g]RQI, Relationship Quality Index: measure of relationship quality and satisfaction; [h]d = effect sizes calculated as Cohen's d; [i]CS, commitment statement: pledge to practice positive parenting; [j]STOP LOOK LISTEN, card contained positive parenting tips and helpful resources; [k]NS, Difference is not statistically significant; [l]Parenting Sense of Competence (PSOC): questionnaire for parents on their competence as a parent; [m]SDQ, Strengths and Difficulties Questionnaire: survey of parental perception of child's emotional and behavioral problems.
CI, confidence interval; OR, odds ratio; RN, registered nurse.

Table III. *Campaign goals, messages and targeted risk factors*

Risk factor #	Descriptions of major risk factors addressed in campaigns		Risk factors							
			1	2	3	4	5	6	7	8
Andrews *et al.* [46]	• Promote public action to prevent child abuse	• 'The children may be abused physically, sexually and emotionally, or neglected altogether. And the scars may take years to heal. The worst part is, they can't help themselves. But you can'. • 'If you know of an abused or neglected child, make the toughest decision you'll ever make. Call South Carolina Cares, and we'll help you get help'.							X	X
Calam *et al.* [47]	Triple P—Level 1 goals:[b] • Promote positive parenting and Triple P • Normalize parenting challenges among parents and the greater community • Increase positive attitudes toward Triple P • Offset parent blaming messages found in media with positive parenting messages	• 'Quiet time is not a harsh punishment though. Quiet time is an opportunity to let your child calm down. He needs to understand that when you set a rule, you stick to it'.[c] • 'You've got to back each other and work as a team'.[c] • 'From the beginning, Tom embraced the discipline techniques wholeheartedly though he wasn't always confident'.[c] • 'Yvonne's favorite technique was praising Thomas'.[c]	X	X	X		X	X	X	X
Deyo *et al.* [48]	• Increase knowledge of SBS	• 'It doesn't take long to change someone's life, particularly like Patrick's'.[d] • 'Taking care of a baby is a full time job. Add in the stresses of day to day life, fatigue, family problems, financial worries and overwork and it's easy to see how someone could reach a breaking point and become frustrated or angry especially if the baby is being fussy. It can happen to anyone to mothers, fathers,	X	X	X	X	X	X		

(continued)

Table III. *Continued*

Risk factor #	Descriptions of major risk factors addressed in campaigns		Risk factors							
			1	2	3	4	5	6	7	8
		family members, childcare providers, even friends and teenagers who are just babysitting for a few hours and it happens in every community'.[e]								
		• 'The good news about Shaken Baby Syndrome is that it doesn't have to happen. Everyone who takes care of young children needs to know that it's never ok to shake a baby'.[e]								
	• Increase knowledge of infant crying	• 'Crying is not a reflection on your skills as a parent or caregiver. Crying can't be controlled'.								
		• 'Think about the 2-2-2 theory. Babies begin to cry as early as 2 weeks, crying peaks at 2 months and a baby can cry up to 2 hours a day'.								
	• Increase knowledge of infant soothing techniques	• Infant soothing techniques include the following: 'holding, rocking, singing, playing soft music, and/or feeding'.								
	• Promote self-coping strategies	• 'Identify a family member or friend who can support mom or dad if they need a break anytime during the day or night. Write their phone number next to the phone and call them'.								
		• Self-coping strategies includes the following: 'exercising, calling a friend or family member, taking a time-out, meditating or deep breathing, and/or listening to music'.								

(continued)

Table III. *Continued*

Risk factor #	Descriptions of major risk factors addressed in campaigns		Risk factors							
			1	2	3	4	5	6	7	8
Dias *et al.* [49]	• Provide parenting information through a universal education program	• 'Hard shaking causes babies' heads to whip back and forth uncontrollably. The brain slams repeatedly against the skull. Blood vessels are torn which causes bleeding in the brain and on its surface. Often the retina of the eye is damaged and the spinal cord is injured'.[e] • 'We need to understand that crying is a way babies communicate. It might mean the baby is hungry. It might mean that the baby is tired. It might mean that the baby is sick or that the baby just wants to be held. But it doesn't mean the baby is angry. It doesn't mean that baby is out to get his parent. Or that the parent isn't doing a good job'. • 'When a baby is fussy or is crying, you might try feeding the baby slowly, offering a pacifier, taking the baby for a walk or a ride in the car or simply holding the baby. Maybe the baby is too cold or too warm or isn't feeling well. If you think the baby might be sick, call a healthcare professional for advice'.[e] • 'Sometimes, even the best of caregivers can't figure out why the baby is crying. It's when you are starting to feel frustrated or angry that you need to step back from the situation before you lose control. Put the baby in a crib or other safe place. Close the door and go to another room. Watch television, listen to music or exercise to help you calm down. Call a friend to talk out your frustration or see if they can relieve you for a while'.[e]	X	X	X	X	X	X	X	X

(continued)

Table III. *Continued*

Risk factor #	Descriptions of major risk factors addressed in campaigns		Risk factors							
			1	2	3	4	5	6	7	8
Evans *et al.* [50]	• Increase knowledge of child development	• 'Knowing what to expect of your child at each stage of development can help you to meet your child's changing needs and reduce stress on the entire family'. • 'Infants depend upon adults for their basic needs'. • 'Preschoolers are learning about the world around them'.			X	X	X	X	X	X
	• Increase knowledge of positive parenting strategies	• 'Things got crazy there for a minute. I tried my best but it was really hard. Dawson's teacher, Ms. Jones, she talked to me about getting help and now we're doing pretty good'. • 'Our friends at church tried to help but I just didn't like telling them how bad things were. The lady who cuts my hair told me about the parent helpline. The helpline got us into a parenting group and helped me find a new job'. • 'Positive reinforcement works much better than negative reinforcement'. • 'Being a parent is hard, but there is help. Call Florida's FREE and CONFIDENTIAL parent helpline'. • 'Distract and divert is a way to take your child's attention off one thing and focus it onto something else. When your child is doing something you don't like or that may be dangerous, give your child something else to do'. • 'Tell your child what can they can DO instead of telling them DON'T'.								
	• Increase community action to prevent child abuse/ neglect	• 'I was worried at first. Her mama was so young. I told her mama I would watch the baby so she could go to the grocery store and								

(continued)

Table III. *Continued*

Risk factor #	Descriptions of major risk factors addressed in campaigns		Risk factors							
			1	2	3	4	5	6	7	8
		just take a few minutes to herself. I still do it today. It doesn't take much of my time and her mama said it was such a big help. It's your turn to raise the leaders of tomorrow. Find out how at ounce.org'.								
Fujiwara [51]	• Increase knowledge of SBS and infant crying	• 'P for peak pattern of crying; U for unexpected crying; R for crying that is resistant to soothing; P for showing a pain-like face when they cry; L for long lasting cries; and E for evening clustering of crying; The word Period means that the crying has a beginning and an end'.		X		X	X			
	• Increase appropriate behaviors for dealing with infant crying	• (1) 'Increase carry, comfort, walk and talk responses; (2) if the crying is too frustrating, it's OK to walk away, put the baby down in a safe place, calm yourself and then return to check on the baby, and (3) never shake or hurt a baby'.								
Mandell[52]	• Promote positive parenting techniques	• 'STOP. LOOK. LISTEN. At report card time: STOP whatever you are doing, LOOK at your child's report card, LISTEN to what your child has to say'.		X			X		X	X
	• Increase awareness of crisis intervention hotlines	• 'For different ways to deal with your children call: Parents Anonymous Stress-Line, First Call for Help or NCPCA'.								
McLaren[54]	• Alter damaging behaviors in families	• 'It's not OK to be cruel to your boy just because it never did me any harm, or scream abuse at your children just because you're unhappy. It's not OK to control your family with threats, to bully them, to intimidate them or		X		X			X	X

(continued)

Table III. *Continued*

Risk factor #	Descriptions of major risk factors addressed in campaigns		Risk factors 1	2	3	4	5	6	7	8
		ever think that you can demand their love and respect'.[e]								
	• Reduce social norms that tolerate family violence	• 'It's not OK to teach your kids that violence is the way to get what you want. It's not OK to make them feel worthless just because you're having a bad day. It's not OK to destroy their confidence with hurtful words or make them feel scared in their own home'.[f] • 'It's not OK that every year an average of 14 million New Zealand women, 6 men and 10 children are killed by a member of their own family'.[f] • 'It's not OK to look the other way and say it's not our problem because it is our problem. And it's not OK ever but it is OK to ask for help'.[f]								
McLaren[53]	• Alter damaging behaviors in families • Reduce social norms that tolerate family violence	(Same as above)		X		X			X	X
Norton *et al.*[55]	• Raise public's awareness of SBS	Not reported[f]				X	X			
Prinz *et al.*[56]	Triple P—Level 1 goals:[b] • Promote positive parenting and Triple P • Normalize parenting challenges among parents and the greater community • Increase positive attitudes toward Triple P	Not reported	X	X	X		X	X	X	X

(continued)

Table III. *Continued*

Risk factor #	Descriptions of major risk factors addressed in campaigns		Risk factors							
			1	2	3	4	5	6	7	8
	• Offset parent blaming messages found in media with positive parenting messages Triple P goals: • Prevent child behavior problems • Increase knowledge of parenting resources • Strengthen parenting skills • Increase parental self-efficacy • Promote safe, nurturing environments • Practice positive parenting • Promote children's competencies									
Sanders *et al.* [57]	Triple P—Level 1 goals:[b] [see top half of Prinz *et al.* (2009) above]	• 'Quiet time is not a harsh punishment though. Quiet time is an opportunity to let your child calm down. He needs to understand that when you set a rule, you stick to it'.[c] • 'You've got to back each other up and work as a team'.[c] • 'From the beginning, Tom embraced the discipline techniques wholeheartedly though he wasn't always confident'.[c] • 'Yvonne's favorite technique was praising Thomas'.[c]	X	X	X		X	X	X	X
Sanders *et al.* [58]	Triple P—Level 1 goals: • [see top half of Prinz *et al.* (2009) above]	Not reported	X	X	X		X	X	X	X

(continued)

Table III. *Continued*

Risk factor #	Descriptions of major risk factors addressed in campaigns		Risk factors							
			1	2	3	4	5	6	7	8
Sanders *et al.* [59]	Triple P—Level 1 goals:[b] • [see top half of Prinz *et al.* (2009) above] Triple P goals: • [see bottom half of Prinz *et al.* (2009) above] Other goals: • Promote children's mental health and positive transition to school	Not reported	X	X	X		X	X	X	X
Scholer *et al.* [60]	• To provide parents with appropriate discipline strategies	• 'For managing hurtful behavior in young children, we recommend that you teach children not to be a victim, learn how to respond to hurtful behavior, decrease exposure to violence, show love, and be consistent'.[g] • 'Great options: Set the rule by firmly saying 'No hitting.' Redirect by giving your child an example of how to be helpful with his hands. Redirect by asking your child what should be done with his hands. Ask your child how the other child feels. Later in the day, praise your child for playing nicely. Discuss why hurtful behavior is wrong. Tell your child that you expect the right choice next time. Role play at another time'.[h] • 'Good options after others have been tried: Place your child in a time-out. Take away a privilege. Say 'No' to your child. Tell your child what to expect if he is hurtful again (i.e., give warning). Hold and give hugs to your child. At another time, encourage rough and					X			

(continued)

Table III. *Continued*

Risk factor #	Descriptions of major risk factors addressed in campaigns		Risk factors							
			1	2	3	4	5	6	7	8
		tumble play. Ask your child about his feelings. Leave the area'.[h]								
		• Poor parenting strategies: 'Spank your child. Ignore the behavior. Yell or speak angrily at your child. Tell your child that he is hurtful child'.[h]								
Showers [61]	• Increase knowledge of the dangers of shaking babies	• 'No matter how impatient or angry you feel, DO NOT SHAKE THE BABY. Letting the baby cry it out when you have had enough is safer than shaking or punishing the baby'.	X	X	X	X	X			
	• Normalize infant crying	• 'Some babies cry a lot when they are hungry, wet, tired, or just want company. Some infants cry at certain times of the day or night (usually when you want to sleep or eat). Feeding and changing them may help, but sometimes even that doesn't work'.								
	• Increase knowledge of how to deal with colicky babies	• 'If your baby cries a lot, try the following: feed the baby slowly; burp the baby often. Offer the baby a pacifier. Hold the baby against your chest and walk or rock him/her. Take the baby for a ride in a stroller or car or put him/her in a baby swing. If you breastfeed, avoid eating onions or beans or drinking coffee, tea, or cola'.								
		• 'Be patient. The baby does not hate you or want to ruin your life. If you have had all you can take, wrap the baby in a soft blanket and put the baby on his/her stomach or right side (in a quiet, dark room if possible). Take a								

(continued)

Table III. *Continued*

Risk factor #	Descriptions of major risk factors addressed in campaigns		Risk factors							
			1	2	3	4	5	6	7	8
		break. Have someone else take care of the baby for a while if possible'. • 'Your baby will outgrow the constant crying. For now, HOLDING AND CUDDLING BEHAVIOR TELLS THE BABY YOU LOVE HIM OR HER AND WANT HIM OR HER TO FEEL BETTER'.								
Stewart *et al.* [62]	• Reduce SBS	• 'P – **P**eak of crying; U – **U**nexpected; R – **R**esists soothing; P – **P**ain-like face; L – **L**ong lasting; E – **E**vening & late afternoon; The word Period means that the crying has a beginning and an end'.[h] • 'Sometimes babies can cry for hours at a time, no matter what you do to soothe them. In many cases, this is perfectly healthy. It's called the Period of PURPLE Crying, and it can be common in the first five months of life-starting in the first few weeks and peaking around two months. The good news is that it will end. No matter how long a baby cries, never use shaking to stop crying. This can cause serious and permanent injury. Remember, long-lasting crying will come to an end. Learn more at purplecrying.org'.[h]		X	X	X	X			

(continued)

Table III. *Continued*

Risk factor #	Descriptions of major risk factors addressed in campaigns	Risk factors 1	2	3	4	5	6	7	8
		Column totals *n* (%)							
1	Negative attribution biases: campaign helps parents understand that most child behaviors are not based on bad intentions or ill will toward to the parent. Although a certain behavior may anger the parent, it is unlikely that the child intended to do so.	8 (47.1)							
2	Parental impulsivity: Campaign teaches parents ways to control anger that may lead to CP/CPA and the importance of taking a break when parenting becomes frustrating.		13 (76.5)						
3	Lack of knowledge regarding child development or inappropriate expectations for child's developmental stage: campaign helps to prevent parents from over or underestimating a child's abilities for his/her developmental age.			11 (64.7)					
4	Lack of knowledge on the consequences of hitting, corporal punishment or infant shaking: campaign helps to increase parents' knowledge of how hitting can damage a child's mental and physical health.				9 (52.3)				
5	Lack of knowledge or skills regarding positive parenting techniques: campaign helps to increase parents' knowledge of non-physical positive parenting skills.					14 (82.4)			
6	Lack of self-care: campaign encourages parents to take care of themselves for optimal mental and physical health.						8 (47.1)		
7	Lack of social support: campaign emphasizes the importance of having or providing social and community support to parents of young children.							11 (64.7)	
8	Stigma of asking for help: campaign attempts to normalize parenting challenges and help parents feel comfortable asking for help.								11 (64.7)

[a]Unless noted otherwise, all messages were retrieved from the evaluation article, campaign materials and/or the evaluation article's primary contact. Messages were selected to exemplify risk factors identified in the article text.
[b]Goals are based on those outlined in a previous study [45].
[c]Retrieved from 'Driving Mum & Dad Mad Excerpts - Thomas Part Two', Positive Parenting Programme (Triple P), http://www.youtube.com/watch?v=KuinpGZb4_A. Accessed: 17 March 2014.
[d]Retrieved from 'Shaken Baby Syndrome,' http://www.youtube.com/watch?v=m9m5KwvX0pQ. Accessed: 17 March 2014.
[e]Retrieved from 'Family Violence: It's not OK', http://www.areyouok.org.nz/not_ok_tvc.php. Accessed: 17 March 2014.
[f]"Not reported" means no messages were reported in the article nor were they accessible through an internet search or request to author for materials.
[g]Retrieved from 'Play Nicely', http://playnicely.vueinnovations.com/playnicely/English. Accessed: 17 March 2014.
[h]Retrieved from another study [63].

risk factors included lack of knowledge about the consequences of hitting, CP or infant shaking (52.3%), parents' negative attribution biases (i.e. parents misinterpreting a child's difficult behavior as meaning to purposefully anger or disrespect the parent) (47.1%) and parents' lack of self-care (41.2%).

Outcome evaluation

Seven different evaluation designs were used, with some studies using more than one type: randomized control trial (RCT) ($n = 7$); Single survey at mid- or post-intervention ($n = 4$); Pre- and mid- or post-intervention, one group ($n = 3$); Simple time series ($n = 2$); Time series with comparison group ($n = 1$); Non-equivalent groups, pre- and post-intervention ($n = 1$) and survey with timing ambiguous in relation to the campaign ($n = 1$). Participants were recruited through a variety of probability and non-probability sampling methods.

Only three studies examined child abuse outcomes specifically and found a reduction in the incidence of abusive head injuries [49], child maltreatment injuries [56] and child maltreatment cases [52, 56]; though one was not statistically significant [52]. However, some measure of behavior change was assessed in more than half (58.8%) of the studies [46, 47, 49–53, 56–59]. Significant decreases were seen in child behavior problems [47, 57–59] and in dysfunctional or coercive parenting behaviors [47, 51, 57, 59]. Two studies reported increases in calls to helplines to report child abuse cases [46, 52]. Increases also were seen in the number of callers wanting to seek assistance from the helpline or report parental alcohol and drug abuse [46]. Two studies reported statistically significant increases in the number of attempts by parents and/or community members to prevent child abuse through strategies promoted in the campaign, such as assisting parents by watching their children [50] and sharing information about excessive infant crying with other caregivers [51].

Attitudes were assessed in seven of the studies [46, 50, 53–55, 61, 62]. However, only one study reported a significant improvement in positive attitudes toward preventing child abuse from pre- to post-intervention and across two groups [50]. Knowledge was assessed in six studies [48, 50, 51, 55, 61, 62]. Significant increases were seen in knowledge of SBS [48, 62], child development, community resources [50] and the causes and patterns of infant crying [51, 62].

Additional indicators that were frequently assessed included parental self-efficacy and parental anger. Significant increases in parenting self-efficacy or competence were reported in three [47, 57, 58] of four studies, while significantly decreased parental anger or frustration was reported in two [47, 57] of three studies. One study assessed and found improvements in parents' intentions to use appropriate and positive child discipline strategies [60].

Of the 17 studies we reviewed, six were focused on the prevention of SBS. Two utilized 'The PERIOD of PURPLE Crying' materials [51, 62] and the remaining used a variety of multimedia materials [48, 49, 55, 61]. Significant improvements were seen in variables such as knowledge of SBS [48, 51, 62], knowledge of infant crying patterns [51, 62] and ways for parents to cope with excessive baby crying, such as walking away and self-talk strategies [51]. One study found a significant decline in the number of abusive head injuries among infants at follow-up [49].

Five studies in this review involved Triple P: two examined the entire Triple P program [56, 57] and three examined Level 1 only [47, 58, 59]. All Triple P studies were RCTs except for one non-equivalent groups design [59]. Significant changes in beliefs, knowledge, parental emotions and/or behaviors were seen in all five studies [47, 56–59]. Key significant findings include, but are not limited to, decreases in child problem behaviors [47, 57–59], decreases in dysfunctional parenting [47, 57, 59] and increases in parental self-efficacy [47, 57, 58].

An overview of study designs and interventions is provided in Table IV.

Discussion

Our extensive review of evaluations of population-level CPA prevention programs with a media

Table IV. *Overview of reviewed studies and interventions*

Characteristics	Total *n* (%)	Two group design *n* (%) (within category)	Triple P studies *n* (%) (within category)
Total	17 (100.0)	9 (52.9)	5 (29.4)
Evaluation design[a]			
RCT	7 (41.2)	7 (100.0)	4 (57.1)
Two group (non-RCT)	2 (11.8)	2 (100.0)	1 (50)
Single group, pre–post or time series	4 (23.5)	0 (0)	0 (0)
Single group, other (e.g. one measurement)	4 (23.5)	0 (0)	0 (0)
Prevention type			
Primary	12 (70.6)	7 (58.3)	3 (25.0)
Primary and secondary	4 (25.3)	2 (50.0)	2 (50.0)
Secondary and tertiary	1 (5.9)	0 (0)	0 (0)
Primary outcome targeted			
Shaken baby syndrome/AHT	6 (35.3)	2 (33.3)	0 (0)
Positive parenting (Triple P)	5 (29.4)	5 (100)	5 (100)
Positive parenting (other/not Triple P or AHT)	3 (17.6)	2 (66.7)	0 (0)
Other (e.g. abuse recognition)	3 (17.6)	0 (0)	0 (0)
Positive outcomes[b]			
Any (below groups not mutually exclusive)	13 (76.5)	9 (69.2)	5 (38.5)
Child abuse or AHT, reduction	3 (17.6)	2 (66.7)	1 (33.3)
Parenting behavior, improvement	4 (17.6)	4 (100.0)	3 (75.0)
Child behavior, improvement	4 (25.3)	4 (100.0)	4 (4/100)
Other (e.g. parent mental health, intentions; community knowledge, attitudes, reporting)	11 (64.7)	7 (63.6)	4 (36.4)
No. of risk factors addressed			
7–8	6 (35.3)	6 (100.0)	5 (100.0)
5–6	3 (17.6)	1 (33.3)	0 (0)
3–4	5 (29.4)	1 (20.0)	0 (0)
1–2	3 (17.6)	1 (33.3)	0 (0)

[a]If more than one design was used in a study, the study was credited for the 'better' design.
[b]Positive outcomes were classified as those that were statistically significant at $P < 0.05$ in the desired direction for RCTs, other two group designs and single group pre–post or time series designs; no findings from studies ($n = 4$) with single time point or ambiguous time point surveys were included.
AHT, abusive head trauma.

component revealed only 17 articles that met our eligibility criteria. This paucity points to a gap in existing CPA prevention efforts focused on universal target populations. In addition, the shortage of evaluations retrieved for this review underscores the importance of evaluating CPA campaigns. Findings from our review indicate that the evidence regarding this method's ability to reduce CPA is insufficient, primarily due to weak evaluation methodologies. However, the evidence for the Triple P program in particular is promising. Lending to the strength of this review, nine of the evaluation studies used comparison (two) group designs, seven of which were RCTs. Three studies actually assessed CPA rates and detected significant reductions. But only two of these used strong evaluation designs including an RCT of an intervention that addressed seven out of eight identified risk factors [56] and a time series with a comparison group that addressed all eight risk factors [49]. The third study used a simple time series design and only addressed half of the identified risk factors (parental impulsivity, lack of knowledge or skills regarding positive parenting techniques, lack of social support and stigma of asking for help) [52]. Further, many of the reviewed interventions produced significant parent and child behavioral effects [47, 51, 57–59] as well as improvements in parents' knowledge of CPA, CP, SBS and/or neglect [48, 50, 51, 62]. The impact of these interventions on attitudes, beliefs and change in awareness is less conclusive because these outcomes were measured less frequently or the evaluation designs were less strong.

We found that eight key risk factors were frequently targeted for CPA prevention. These risk factors were identified a total of 85 times across the examined articles. Campaigns that targeted the most common risk factor addressed, lack of knowledge or skills regarding positive parenting techniques, aimed to promote positive parenting strategies and to empower parents to use non-punitive discipline techniques. Campaigns that targeted the next most common risk, parental impulsivity, aimed to teach parents how to control angry outbursts, which can lead to CPA or CP, through positive parenting strategies such as walking away or taking a break when parenting becomes too frustrating. The next most common risk was inappropriate expectations that parents can have for their children. Campaigns that addressed this aimed to improve parents' knowledge of children's developmental milestones and normal behavior for certain ages so that parents were less likely to over- or underestimate their child's capabilities [47–49, 56–59, 61]. Such lack of knowledge can lead to parental frustration, anger and use of punishment in the face of 'normal' child behavior. Also targeted just as frequently as inappropriate expectations were lack of social support and stigma of asking for help. To improve social support, campaigns encouraged community members to be aware of signs of child abuse, to offer a helping hand to other parents and to increase awareness of parenting resources. To reduce the stigma of asking for help, campaigns encouraged parents to seek help when they became overwhelmed or frustrated and also normalized the need for help with parenting. This approach aims to discourage parents from feeling inadequate in their own parenting skills and to normalize parenting challenges.

The three least commonly targeted risk factors—lack of knowledge about the consequences of physical punishment or infant shaking, parents' negative attribution biases and parents' lack of self-care—were all still targeted in about half of the studies. Many campaigns sought to increase the knowledge that use of physical punishment even that which is not classified as abuse, can harm children's mental and physical health. To address negative attribution biases, campaigns aimed to help parents understand that although children can be difficult, they rarely do things deliberately to anger parents. For example, parents may misinterpret normal child exploration that results in making a big mess or pulling items off shelves as a sign of disrespect or trying to anger the parent. And finally, many campaigns reminded parents not to neglect their own mental and physical health.

Of the two interventions that demonstrated statistically significant decreases in CPA, one targeted reductions in SBS and addressed all eight identified risk factors [49] and the other used the full Triple P

program and addressed seven of the identified risk factors [56]. Many of the studies that revealed significant outcomes were those that targeted SBS or that used Triple P intervention materials. The Triple P-based interventions are also noteworthy because they consistently demonstrated significant improvements in dysfunctional parenting, parental self-efficacy and child behavior problems. Triple P appears to focus primarily on promoting positive parenting strategies. In contrast, interventions targeting SBS tended to include explicit details about the harmful effects of physical punishment or shaking infants in addition to promoting positive alternatives. The consistency in these effective interventions suggests that the risk factors they target should continue to be integrated into future campaigns to prevent CPA. Other programs might learn a lot from these successful interventions.

Although we had hoped to learn more about each campaign's success in addressing specific risk factors, our ability to do this was highly limited. First, most studies did not assess changes in all of the key risk factors that they targeted. For example, although most interventions addressed inappropriate expectations for child developmental stage and also the stigma of asking for help, very few studies actually measured and assessed changes in these risk factors. Second, many studies that did measure their targeted risk factors did not apply a rigorous enough methodology to draw strong conclusions from their findings. We would encourage future program evaluators to address both of these issues whenever possible: that is, to explicitly assess key targeted risk factors and, of course, to use the strongest methodologies possible to ensure greater confidence in results. Such efforts will help to advance program theory in this field by deepening our understanding of how and why certain interventions 'work' while others do not. Such knowledge is essential to developing future successful campaign interventions.

Beyond the key risk factors that we tracked, program effectiveness might well be tied to other key intervention adaptations and sensitivities that were not well documented, such as attention to issues of cultural relevance and stages of child development. On the former issue, while many of the reviewed campaigns reached broad audiences, not all of the campaigns were designed to be culturally sensitive or tailored to different ethnic groups. Three interventions offered campaign materials in multiple languages [49, 60, 62]. Another intervention used program materials that were thoroughly translated from English to Japanese and then back translated to ensure that the campaign messages were not lost in translation in Japan [51]. Other interventions included diverse characters in the campaigns to make them relatable to the target population [50] with one specifically matching campaign materials to the mother's race [61]. Other interventions were conscious of local cultures and national trends. Mandell [52] wrote the campaign materials on a second or third grade reading level to account for the high levels of illiteracy in the target population, whereas several Triple P Level 1 interventions were based on the nationwide popularity of 'infotainment' [47, 57, 58]. Finally, several articles cited previous studies or presented findings that the campaign materials were designed to be appropriate for [52, 53] or were effective across multiple cultures [56, 59, 60]. In short, some issues of cultural sensitivity and adaptation were addressed by close to half of the campaigns, but very few demonstrated the extent, success and effectiveness of these adaptations.

Extent of intervention tailoring to relevant stages of child development might also be an important factor in program success, particularly given that appropriate parenting instructions and CPA risk varies by child age. The SBS interventions, which specifically target parents of infants, are strong examples of tailoring to child developmental stage. All of the SBS interventions reviewed aimed to educate parents about the dangers of shaking during the critical newborn period [48, 49, 51, 55, 61, 62]. Other interventions based their campaigns on stages of child development. For example, noting an increase in CPA during report card periods, Mandell [52] attached resources for CPA prevention to school-aged children's report cards. Evans *et al.* [50], who found a significant increase in knowledge of child development but not in knowledge of

age-appropriate discipline strategies, distributed parenting resource guides with tips for managing common child behavior problems at each developmental stage. Sanders *et al.* [59] developed their intervention for parents of children making the transition to school, citing that parents might be more willing to engage in programs during an important time for the parents and child. Several articles mentioned Triple P's ability to assist parents with children of all ages [47, 56–58] and one emphasized the benefits of Play Nicely in teaching parents age-appropriate discipline strategies in the early years of the child's life [60]. Future reviews would benefit from more careful documentation and tracking of program adaptations and attention to issues such as child development and cultural sensitivity.

Strengths and limitations

This review has several limitations. Only one independent reviewer conducted the search for relevant literature using Method 1 (journal database search), therefore, some eligible articles may have been overlooked in the initial search. However, two research assistants exhausted Method 2 (search engine). Methods 3, 4 and 5 were used to further reduce the risk of missing any eligible studies. The linking of interventions with risk factors was based solely on what was written in the text description and available campaign materials and was not verified with the article author or campaign program staff. It is possible that some campaigns addressed more risk factors than we identified based on what was written in the text or campaign materials. However, as we did not have access to all campaign materials, this was the least biased method that we could choose. Moreover, the availability of many Triple P evaluations and formative articles (e.g. [45]) may have placed the program at an advantage over the other interventions in our review. Given the complexity of the multilevel intervention, it was difficult to dissect the program goals and risk factors that were targeted at each level. Therefore, it is likely that the interventions with only Level 1 components did not target as many risk factors as the interventions with Levels 1–5 of Triple P. Additionally, the specific campaign messages in Table 3 were retrieved from available campaign materials located in the evaluation articles or online. One research assistant included the messages that she deemed most important and relevant to the targeted risk factors. The lack of accessible campaign materials for multiple interventions may have limited our ability to draw comprehensive conclusions about targeted risk factors, the most effective messages, links to program outcomes and overall recommendations.

Conclusions

Our formative research from this review suggests that CPA prevention program developers might consider integrating components into their programs that address the most commonly targeted risk factors highlighted in this review that were linked with significant outcomes. We recommend, at minimum, incorporating the most promising risk factors into CPA prevention programming, including reducing parental impulsivity, reducing the stigma associated with asking for parenting help, increasing social support for parents, increasing knowledge and use of positive parenting techniques and increasing knowledge of appropriate expectations for a child's developmental stage. In particular, Triple P and effective SBS program materials should undergo further rigorous evaluation to confirm their effectiveness in reducing CPA. The use of helplines also appears promising and should be integrated into future interventions and further evaluated.

This review provides a preliminary assessment of the impact of population-level interventions with a media component for CPA prevention and suggests that, although the evidence for Triple P is promising, the current level of evidence for other examined interventions is insufficient to draw solid conclusions and additional studies are needed. Overall, more rigorous evaluations should be conducted in order to broaden the evidence base for these types of interventions. Future evaluation studies would benefit from the inclusion of clear program theory

descriptions along with a clear review of targeted risk factors and their linkages with program messages and components. Further development and testing of universal CPA prevention campaigns is important given their potential for community-level impact. The very high economic [12] and public health [8] costs of child maltreatment to society mean that even modest prevention program effects on universal targets could have a major positive impact on society.

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Conflict of interest statement

None declared.

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