

Child maltreatment prevention: a systematic review of reviews

Christopher Mikton^a & Alexander Butchart^a

Objective To synthesize recent evidence from systematic and comprehensive reviews on the effectiveness of universal and selective child maltreatment prevention interventions, evaluate the methodological quality of the reviews and outcome evaluation studies they are based on, and map the geographical distribution of the evidence.

Methods A systematic review of reviews was conducted. The quality of the systematic reviews was evaluated with a tool for the assessment of multiple systematic reviews (AMSTAR), and the quality of the outcome evaluations was assessed using indicators of internal validity and of the construct validity of outcome measures.

Findings The review focused on seven main types of interventions: home visiting, parent education, child sex abuse prevention, abusive head trauma prevention, multi-component interventions, media-based interventions, and support and mutual aid groups. Four of the seven – home-visiting, parent education, abusive head trauma prevention and multi-component interventions – show promise in preventing actual child maltreatment. Three of them – home visiting, parent education and child sexual abuse prevention – appear effective in reducing risk factors for child maltreatment, although these conclusions are tentative due to the methodological shortcomings of the reviews and outcome evaluation studies they draw on. An analysis of the geographical distribution of the evidence shows that outcome evaluations of child maltreatment prevention interventions are exceedingly rare in low- and middle-income countries and make up only 0.6% of the total evidence base.

Conclusion Evidence for the effectiveness of four of the seven main types of interventions for preventing child maltreatment is promising, although it is weakened by methodological problems and paucity of outcome evaluations from low- and middle-income countries.

Une traduction en français de ce résumé figure à la fin de l'article. Al final del artículo se facilita una traducción al español. الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة.

Introduction

Child maltreatment prevention is poised to become a global health priority due to four main factors. First, retrospective and prospective studies have established that child maltreatment has strong, long-lasting effects on brain architecture, psychological functioning, mental health, health risk behaviours, social functioning, life expectancy and health-care costs.^{1,2} Second, the full implications of these effects on human capital formation, the workforce, and, ultimately, social and economic development in low-, middle- and high-income countries are now better understood.^{3,4} Third, epidemiological studies have clearly established that child maltreatment is not peculiar to the West but a truly global phenomenon that occurs in some low- and middle-income countries at higher rates than in wealthier countries.^{5,6} Fourth, evidence strongly suggests that treating and later trying to remedy the effects of child maltreatment are both less effective and more costly than preventing it in the first place.⁷ Despite this, epidemiological data on and policies and programmes against child maltreatment are conspicuously lacking in most low- and middle-income countries, and in high-income countries, such as the United States of America (USA), investment in child protection systems continues to outweigh prevention budgets.⁸

This systematic review of reviews of the effectiveness of child maltreatment prevention interventions aims to add to existing reviews by:

- providing an up-to-date synthesis of recent evidence;
- evaluating the quality of the systematic reviews included;

- assessing the methodological quality of the outcome evaluations included in the reviews;
- mapping the geographical distribution of the studies included in the reviews.

Methods

The following English and non-English language electronic databases were searched by one reviewer, with no language restrictions: Medline, PsychINFO, Embase, CINAHL, Social Sciences Citation Index, Science Citation Index, LILACS, ERIC, NCJRS, the Campbell Library, the Cochrane Library, WorldWideScience, KoreaMed, IndMED, and Google. In addition, reference lists of review articles and the *Journal of Child Abuse and Neglect* were searched, and 10 international experts were consulted. For inclusion, reviews had to evaluate the effectiveness of “universal interventions” (those aimed at the general population without regard to risk) or “selective interventions” (those aimed at people at higher risk), but not “indicated interventions” (those carried out once child maltreatment has already occurred); be published between January 2000 and July 2008; be either systematic or comprehensive (i.e. covering a wide range of relevant studies); and include at least one of the following outcomes: physical abuse, sexual abuse, neglect, or emotional abuse perpetrated by a parent or caretaker against a child (bullying and witnessing intimate partner violence were excluded). Only easily accessible reviews were included (i.e. published in a peer-reviewed journal, a book, or online), since the aim was to focus on

^a Department of Violence and Injury Prevention and Disability, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland.

Correspondence to Christopher Mikton (e-mail: miktonc@who.int).

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reviews with a wide influence on policy and practice. Hence, less easily accessible grey literature, such as theses and dissertations, conference proceedings and reviews that were neither published nor available online, was excluded. Full details of the search strategy and of inclusion and exclusion criteria, as well as a list of the studies excluded, are available from the authors.

A second reviewer independently screened 25% of the studies identified and previously screened by the first reviewer. Both reviewers assessed the full text of all reviews in light of the inclusion criteria. Uncertainties were discussed and consensus was reached in all cases.

Evidence for the effectiveness of each main type of intervention was graded independently by two reviewers (Table 1)^{9–34} with an adaptation of a pre-existing system,³⁵ and there were no disagreements.

The methodological quality of the systematic reviews was evaluated with AMSTAR, a measurement tool for the assessment of multiple systematic reviews that has good reliability and validity.^{36,37}

To assess the quality of relevant individual outcome evaluation studies included in the reviews and map their geographical distribution, single publications on individual outcome evaluation studies were used as the unit of analysis. The rationale for selecting individual publications over studies was that different publications based on the same outcome evaluation study could be reporting different outcomes of interest. However, when a publication was on two different outcome evaluation studies, for instance, it was included twice. The number of times individual publications were included in the reviews also served as a rough proxy for the comprehensiveness of reviews' search strategies.

Two dimensions of the methodological quality of individual outcome evaluation studies were assessed: (i) internal validity, based on the research design (randomized controlled, non-randomized controlled and having no control group); and (ii) construct validity of the outcome measure, categorized into direct measures of child maltreatment (e.g. reports from child protective services), proxy measures (e.g. emergency department visits, hospitalization for injury), or

risk factors (e.g. measures of child abuse potential, parental stress).

Results

Synthesis of evidence

Overall

Of the 3299 titles identified through the search strategy, 26 met the inclusion criteria (Table 1).^{9–34} The full-text versions of 53 further reviews were considered and excluded. The 26 reviews included summarized 298 publications on primarily single outcome evaluation studies and another 85 reviews and commentaries. The following seven main types of interventions were included in at least two of the 26 reviews and are the most widely implemented and evaluated types of interventions. This typology reflects that used by the reviews themselves.

Early childhood home visitation

Trained personnel visit parents and children in their homes and provide support, education and information to prevent child maltreatment. They also seek to improve child health and parental caregiving abilities. Of the 26 reviews that satisfied the inclusion criteria, 17 summarized evidence on early childhood home visitation programmes (Table 1) based on 149 publications on individual outcome studies and several further reviews. This made it the most extensively evaluated type of intervention.

Although Bilukha et al., MacMillan, and Daro & McCurdy recommend early child home visitation for preventing child maltreatment on the basis of "good" or "strong" evidence from direct outcome measures,^{17,22,25} others reach more tentative conclusions. Barlow et al. consider the evidence equivocal due mainly to surveillance bias (i.e. an increased likelihood that child maltreatment will be observed and reported due to the presence of a visitor in the home).⁹ Bull et al. and Elkan et al. both consider the evidence inconclusive due to methodological problems, including surveillance bias.^{10,18} Sweet & Appelbaum found that the effect size for this type of intervention was not significantly different from 0 in the case of actual abuse.¹⁵ Overall, these reviews suggest that early home visitation programmes are effective in reducing

risk factors for child maltreatment, but whether they reduce direct measures is less clear-cut. Several reviews single out Olds et al.'s Nurse Family Partnership in the USA as the only home visiting programme whose effectiveness has been unambiguously demonstrated. A randomized controlled trial showed a 48% reduction in actual child abuse at 15-year follow-up.³⁸

Parent education programmes

This type of intervention, usually centre-based and delivered in groups, aims to prevent child maltreatment by improving parents' child-rearing skills, increasing parental knowledge of child development, and encouraging positive child management strategies. Seven of the 26 reviews summed up evidence relevant to this type of intervention from a total of 46 individual publications on outcome evaluation studies and from several other reviews.

Two of the meta-analyses reported small and medium effect sizes for parent education programmes on the basis of both risk factors and direct measures of child maltreatment.^{12,13} Other reviews concluded, however, that while the evidence shows improvements in risk factors for child maltreatment, evidence of an effect on actual child maltreatment remains insufficient.

Child sexual abuse (CSA) prevention programmes

Most of these programmes are universal programmes delivered in schools and teach children about body ownership, the difference between good and bad touch, and how to recognize abusive situations, say no, and disclose abuse to a trusted adult. Of the 26 reviews, 11 included evidence on CSA prevention programmes from a total of 74 publications and several other reviews.

These reviews are all but unanimous in the finding that, on the one hand, school-based interventions to prevent child sexual abuse are effective at strengthening protective factors against this type of abuse (e.g. knowledge of sexual abuse and protective behaviours) and, on the other, that evidence about whether such programmes reduce actual sexual abuse is lacking. Two studies that measured future sexual abuse as an outcome reported mixed results.^{39,40}

Table 1. Effectiveness scores for universal and selective child maltreatment prevention interventions, according to a systematic review of reviews

Reviews by type	Home visiting		Parent education programmes		Sexual abuse prevention		Abusive head trauma		Multi-component interventions		Media-based public awareness		Support and mutual aid groups	
	Direct measure	Risk factor	Direct measure	Risk factor	Direct measure	Risk factor	Direct measure	Risk factor	Direct measure	Risk factor	Direct measure	Risk factor	Direct measure	Risk factor
Review of reviews														
Barlow et al., 2006 ⁹	4	5	3	5					3					2 ^a
Bull et al., 2004 ¹⁰		3 ^a												
Meta-analyses^b														
Davis & Gidycz, 2000 ¹¹					3	5 (1.07)								
Geeraert et al., 2004 ¹²			5 (0.26)	5 (0.29)										
Lundahl et al., 2006 ¹³			5 (0.45)	5 (0.52)										
MacLeod & Nelson, 2000 ¹⁴	5 (0.41) ^c								5 (0.58) ^c		5 (1.26) ^c		5 (0.38) ^c	
Sweet & Appelbaum, 2004 ¹⁵	3	5 (0.24) ^d												
Zwi et al., 2007 ¹⁶					3	5 ^e								
Systematic reviews														
Bilukha et al., 2005 ¹⁷	5 (39%)													
Elkan et al., 2000 ¹⁸		3												
Higgins et al., 2006 ¹⁹	3	5												
Holzer et al., 2006 ²⁰			4	5										
Klevens, 2003 ²¹							3							
MacMillan, 2000 ²²	5		3		3	5			3					
MacIntyre & Carr, 2000 ²³					3	5								
Comprehensive reviews														
Chaffin & Schmidt, 2006 ²⁴	3				3									
Daro & McCurdy, 2007 ²⁵	5	5	3	4	4	4				3	3			
Hébert & Tourigny, 2004 ²⁶					3	5								
Kees & Bonner, 2005 ²⁷	3	5			3	5			4					
Krugman et al., 2007 ²⁸	4		3		3	5	4							
Mace, 2000 ²⁹					3	5								
MacMillan et al., 2007 ³⁰	4				3	5								
Olds et al., 2000 ³¹	4	5												
Olds et al., 2007 ³²	4													
Rubin et al., 2001 ³³		4					3				3			
Other														
Chaffin, 2005 ³⁴	3													
Overall evaluation	4	5	4	5	3	5	4		4	4	3	4		3

1, judged to be harmful or, if no explicit judgment given, found to have a detrimental effect in two or more well-designed studies or a systematic review; 2, judged not to be effective or, if no explicit judgment given, found to have no effect in two of more well-designed studies or a systematic review; 3, judged to have insufficient, weak, or mixed evidence supporting it; 4, judged to be promising or, if no explicit judgment given, found to be supported by one well-designed study; 5, judged to be effective or, if no explicit judgment given, found to be supported by two or more well-designed studies or a systematic review.

^a In several cases it was not possible to distinguish between evaluations of effectiveness involving direct measures or risk factors.

^b Only significant effect sizes reported.

^c Total mean effect size for (proactive) programmes for all outcomes (out-of-home placements, direct and proxy measures of child maltreatment, measures of parent attitudes, observation of parent behaviour, measures of home environment).

^d Potential abuse only.

^e Effect sizes for different types of outcomes: behaviour change: odds ratio, OR: 6.76; increase in questionnaire-based knowledge: OR: 0.59; increase in vignette-based knowledge: OR: 0.37.

Table 2. Quality of the reviews on child maltreatment interventions found in a systematic review of reviews

Reviews by type	AMSTAR score ^a	No. of all publications included	No. of outcome evaluations included	No. control group %	Risk factor %
Review of reviews					
Barlow et al., 2006 ⁹	6	10	NA	NA	NA
Bull et al., 2004 ¹⁰	7	9	NA	NA	NA
Mean	6.5	9.5	NA	NA	NA
Meta-analyses					
Davis & Gidycz, 2000 ¹¹	9	26	26	0	100
Geeraert et al., 2004 ¹²	6	42	42	22.5	22.5
Lundahl et al., 2006 ¹³	6	23	23	34.8	78.3
MacLeod & Nelson, 2000 ¹⁴	7	31	31	0	60
Sweet & Appelbaum, 2004 ¹⁵	7	67	61	8.2	57.4
Zwi et al., 2007 ¹⁶	10	16	16	0	100
Mean	7.5	34.2	33.2	10.9	69.7
Systematic reviews					
Bilukha et al., 2005 ¹⁷	7	20	20	0	0
Elkan et al., 2000 ¹⁸	8	14	14	0	7.1
Higgins et al., 2006 ¹⁹	4	18	16	0	37.5
Holzer et al., 2006 ²⁰	4	20	18	0	66.7
Klevens, 2003 ²¹	6	4	4	50	50
MacIntyre & Carr, 2000 ²³	3	35	33	18.2	100
MacMillan, 2000 ²²	5	25	19	0	36.8
Mean	5.3	19.4	17.7	9.7	42.6
Comprehensive reviews					
Chaffin & Schmidt, 2006 ²⁴	NA	23	19	0	5.3
Daro & McCurdy, 2007 ²⁵	NA	56	17	11.8	82.4
Hébert & Tourigny, 2004 ²⁶	NA	45	40	20	95
Kees & Bonner, 2005 ²⁷	NA	14	9	22.2	33.3
Krugman et al., 2007 ²⁸	NA	26	14	7.1	42.9
Mace, 2000 ²⁹	NA	10	5	20	80
MacMillan et al., 2007 ³⁰	NA	38	27	3.7	37
Olds et al., 2000 ³¹	NA	10	9	0	11.1
Olds et al., 2007 ³²	NA	31	31	0	29
Rubin et al., 2001 ³³	NA	45	24	8.7	26
Mean		29.8	19.5	9.4	44.2
Other					
Chaffin, 2005 ³⁴	NA	13	13	0	0
Overall mean	6.3	23.1	21.3	9.5	48.3

AMSTAR, tool for the assessment of multiple systematic reviews ; NA, not applicable.

^a The maximum score on AMSTAR is 11 and scores of 0–4 indicate that the review is of low quality; 5–8, of moderate quality; and 9–11, of high quality.

Abusive head trauma

Only three reviews, which included a total of four publications on outcome evaluations, focused on interventions to prevent abusive head trauma, also referred to as shaken baby syndrome, shaken infant syndrome and inflicted traumatic brain injury.

The most important study to date in this field, included in two of the reviews,^{21,28} is an evaluation of a comprehensive hospital-based parent education programme in New York State.⁴¹ The programme was found to reduce the in-

cidence of abusive head trauma by 47%, yet Klevens concludes that, because of methodological flaws in existing studies, it remains unclear whether interventions to reduce abusive head trauma are effective.²¹

Multi-component interventions

Three reviews, which included a total of seven publications, discussed multi-component interventions, which typically include services such as family support, preschool education, parenting skills and child care. Two reviews

judged the evidence for their effectiveness in reducing risk factors for child maltreatment as mixed⁹ or insufficient,²² and another²⁷ as promising. A meta-analysis found the effect size of multi-component interventions to be 0.58.¹⁴

Media-based interventions

Media campaigns to raise public awareness are often regarded as a critical part of any child maltreatment strategy. Three reviews focused on the effectiveness of such campaigns and surveyed a total of five publications. Two found the

evidence was either mixed²⁵ or insufficient.³³ MacLeod & Nelson, based on two studies (only one of which was included in the two other reviews) found a large effect size (1.26) in the reduction of risk factors for child maltreatment for this type of intervention.¹⁴

Support and mutual aid groups

Two reviews focused on social support and mutual aid groups aimed to strengthen parents' social network. MacLeod & Nelson found an effect size of 0.38 for interventions that used risk factors for child maltreatment as an outcome,¹⁴ whereas Barlow et al. conclude that such interventions are not effective.⁹

Quality of the systematic reviews

Three of the reviews were of low quality (i.e. AMSTAR scores between 0–4), 10 were of moderate quality (5–8), and two, including the Cochrane Review by Zwi et al., were of high quality (9–11)¹⁶ (Table 2). The overall mean AMSTAR score for the 15 systematic reviews included in this study was 6.3 (standard deviation, SD: 1.88).

The minimum standards for the research designs of the studies included were specified in 17 of the 24 reviews (excluding the reviews of reviews). In six of the 11 reviews that included studies with no control group, the latter comprised 20% or more of the total, and in one case, as much as 50%. In 11 of 24 reviews, the proportion of outcome evaluations in which risk factors for child abuse were the outcome measure was at least half. A high proportion of designs without control groups and with outcome variables based on risk factors was equally frequent among meta-analyses, systematic reviews and comprehensive reviews (Table 2).

Table 3. Internal validity of research designs in child maltreatment intervention studies, according to a systematic review of reviews

Design	All interventions % (No.) (n = 298)	Home-visiting % (No.) (n = 149)	Parent education % (No.) (n = 46)	Sexual abuse prevention % (No.) (n = 74)
Randomized controlled	47.0 (140)	59.1 (88)	28.3 (13)	43.2 (32)
Non-randomized controlled	27.5 (82)	21.5 (32)	39.1 (18)	31.1 (23)
No control group	15.1 (45)	10.1 (15)	23.9 (11)	18.9 (14)
Other	3.1 (9)	0.0	6.4 (3)	2.7 (2)
Not clear from report	1.3 (4)	0.7 (1)	2.1 (1)	2.7 (2)
Missing	6 (18)	8.7 (13)	0.0	1.4 (1)

Individual publications were included in the 26 reviews a mean of 1.68 times (SD: 1.51). Included most often – a total of 11 times – were two evaluations of the Nurse Family Partnership by Kitzman et al.⁴² and Olds et al.³⁸

Quality of the studies included in the reviews

Internal validity

Of the 298 publications included, 140 (47%) were studies with randomized controlled designs; 82 (27.5%) had non-randomized controlled designs; and 45 (15.1%) had designs with no control group (Table 3). The remaining 3.1% of studies had other designs (e.g. time-series designs, surveys, or qualitative analyses). For early home-visiting programmes, around 59.1% had randomized designs. For parent education the proportion with randomized controlled designs was considerably lower, at 28.3%, than the 39.1% with non-randomized controlled designs.

Construct validity of the outcome variable

Direct measures of child maltreatment were used in less than one-third of

the publications on outcome evaluations (Table 4), and in around 64.4% of them, risk factors were used as an indicator of child maltreatment. The proportion of direct measures was highest (44.3%) for early home visiting programmes, considerably lower (17.4%) for parent education programmes, and exceedingly low for child sexual abuse prevention (2.7%), for which only risk factors were included in around 97% of the studies.

Geographical distribution of the evidence

Of the 298 publications on outcome evaluation studies included in the reviews, 296 (99.4%) were on studies in high-income countries (around 83% in the USA), two (0.6%) in middle-income countries – a study on a sex abuse prevention programme in China and another on kangaroo mother care and the mother–child bond in Colombia – and none in low-income countries (Fig. 1). Of all publications, 290 (almost 97.3%) were on studies in English-speaking countries. Studies carried out in French-speaking Canada were not included among those carried out in English-speaking countries. In 10 (4%) of the 298 publications it was not possible to determine the country where the study was carried out, so the authors' institutional affiliation was used as a proxy instead.

Discussion

There is evidence that four of the seven types of universal and selective interventions examined in the 26 reviews are promising for preventing actual child maltreatment: home visiting, parent education, abusive head trauma prevention and multi-component programmes

Table 4. Construct validity of the outcome variable in child maltreatment intervention studies, according to a systematic review of reviews

Outcome measure	All interventions % (No.) (n = 298)	Home visiting % (No.) (n = 149)	Parent education % (No.) (n = 46)	Sexual abuse prevention % (No.) (n = 74)
Direct measure	28.2 (84)	44.3 (66)	17.4 (8)	2.7 (2)
Proxy measure	4.4 (13)	8.1 (12)	2.2 (1)	0.0
Risk factor	64.4 (192)	44.3 (66)	73.9 (34)	97.3 (72)
Not applicable	1.0 (3)	0.0	6.5 (3)	0.0
Missing	2.0 (6)	3.4 (5)	0.0	0.0

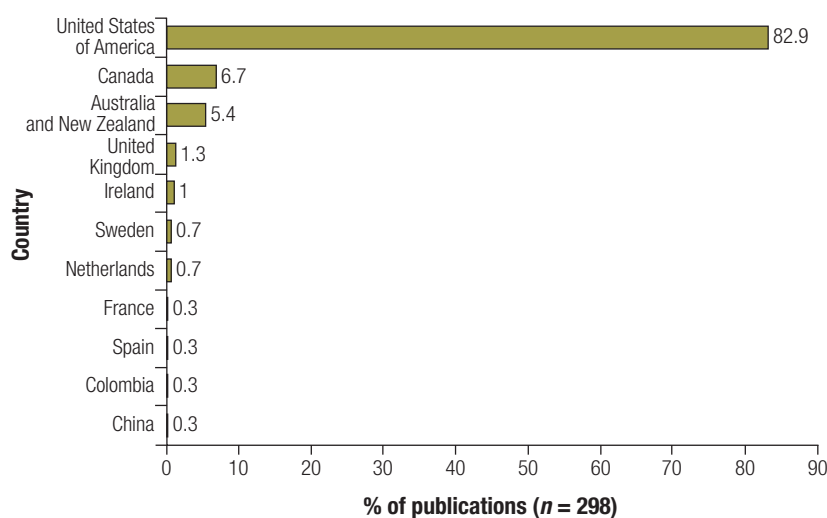
(Table 1). The evidence, in relation to actual child mistreatment, on the three remaining types – child sexual abuse prevention, media-based interventions and social support and mutual aid groups – is either insufficient or mixed. It is important to emphasize that when a particular type of intervention is judged to be promising, it may mean that only a single programme has been unambiguously shown to be effective, as is the case for home-visiting programmes.

Due to methodological limitations of the reviews themselves and the outcome evaluations they are based on, conclusions about effectiveness must remain tentative. The mean AMSTAR score of 6.3 indicates that the quality of the systematic reviews is, on the whole, only moderate. A conspicuous weakness was the failure of seven of the 24 reviews to explicitly set a minimum threshold for the quality of the research designs of the outcome evaluations to be included. Furthermore, the mean number of times individual publications were included in the reviews was 1.68, which suggests that searches were less than comprehensive.

Two methodological weaknesses of the outcome evaluation studies were repeatedly highlighted in the reviews themselves: weak internal validity and inappropriate outcome measures. The analysis of internal validity showed that some 15% of the publications included in the reviews failed to use a control group, and that for child sexual abuse prevention and parenting education the proportion increased to 18.9% and 23.9%, respectively. Such designs offer a particularly poor basis for causal inference and often result in “uninterpretable” findings.⁴³ Non-randomized controlled designs were used in about 27.5% of the publications overall and in 21.5%, 39.1% and 31.1% of the publications on home visiting, parent education and child sexual abuse prevention, respectively. Although the quality of the non-randomized controlled studies was not assessed here, the internal validity of the research designs of most of these studies is generally considered to be weak.^{43,44}

The empirical examination of surveillance bias, a problem affecting outcome measures in home visiting evaluations, suggests that its importance is often exaggerated and that it rarely substantially alters findings.⁴⁵ However, evidence that score changes

Fig. 1. Distribution by country of outcome evaluations in a systematic review of reviews of child maltreatment interventions



on risk factors for child abuse do not always correspond to the likelihood of future abuse is further reason to treat some of the conclusions of this review with caution:⁴⁶ of the outcome variables reported in the publications included in these reviews, 64.4% were risk factors rather than measures of actual abuse.

Of the three meta-analyses that examined the association between methodological quality and effect size, all found that studies with poorer methodological quality had larger effect sizes.^{11,13,15} The significant proportion of methodologically weak studies in this evidence base is hard to justify. Sound principles of evaluation and prevention research were formulated some time ago^{47,48} and have recently been developed into a clear set of standards.⁴⁴ Cumulative knowledge on child maltreatment prevention is ill served by an ever increasing accumulation of methodologically questionable studies.

This study has revealed a woeful imbalance in the geographic distribution of child maltreatment prevention research: over 99% of the publications were on studies conducted in high-income countries, a parallel of the 10/90 gap in other areas of health research. It cannot be assumed that current evidence about the effectiveness of universal and selective child maltreatment programmes applies outside high-income countries. Given differences in culture and risk factors and reduced institutional capacity for evidence-based child maltreatment programme implementation and evaluation, it is

likely that programmes would require extensive adaptation and re-evaluation in low- and middle-income countries to be effective.

This review has the following limitations. First, although the databases searched covered some non-English language sources, the inclusion of further non-English language databases might have identified additional reviews. Second, a recent review published in the *Lancet* was not included, since it appeared after this review was completed.⁴⁹ However, its main conclusions – e.g. that more controlled trials using actual outcomes of maltreatment are needed – reinforce the main messages of this review. Third, in the case of four reviews it was not possible to separate the conclusions derived from the small number of “indicated” interventions included. Fourth, three other methodological quality dimensions of outcome evaluation studies – namely, treatment fidelity, statistical conclusion validity and descriptive validity – were not assessed.⁵⁰ Lastly, only the most easily accessible grey literature was searched. The two main types of grey literature excluded were theses and dissertations and conference proceedings, neither of which is, in general, an important source of systematic and other reviews. Overall, these limitations are unlikely to undermine the main conclusions.

Conclusion

Methods and standards for developing sound and effective child maltreatment

prevention interventions are available and have been successfully applied. There is evidence that four of the seven main types of universal and selective interventions to prevent actual child maltreatment are promising, but methodological weaknesses in both the reviews

and the individual studies included in them render this conclusion tentative.

In low- and middle-income countries, child maltreatment represents a greater health burden and slows economic and social development to a greater extent than in high-income

countries. Yet research on the effectiveness of universal and selective interventions appears to be almost exclusively the affair of English-speaking, high-income countries. ■

Competing interests: None declared.

Résumé

Prévention de la maltraitance chez l'enfant : revue systématique des revues

Objectif Faire la synthèse des preuves récemment fournies par des revues systématiques et complètes sur l'efficacité d'interventions universelles et sélectives pour prévenir la maltraitance des enfants, évaluer la qualité méthodologique de ces revues et des études d'évaluation des résultats sur lesquelles elles reposent et cartographier la distribution géographique des preuves.

Méthodes Une revue systématique de revues a été réalisée. La qualité des revues examinées a été évaluée à l'aide d'un outil d'évaluation des revues systématiques multiples (AMSTAR) et celle des évaluations de résultats au moyen d'indicateurs de la validité interne et de la validité de construction des mesures de résultat.

Résultats La revue s'est concentrée sur sept types principaux d'interventions : visites à domicile, éducation des parents, prévention des abus sexuels chez l'enfant, prévention des traumatismes crâniens dus à la maltraitance, interventions pluri-composantes, interventions s'appuyant sur les médias et groupes de soutien et d'entraide. Quatre sur sept de ces interventions - visites à domicile, éducation des parents, prévention des traumatismes

crâniens dus à la maltraitance - semblent prometteuses pour prévenir la maltraitance proprement dite. Trois d'entre elles - visites à domicile, éducation des parents et prévention des abus sexuels chez l'enfant - apparaissent efficaces dans la réduction des facteurs de risque de maltraitance infantile, en dépit du caractère provisoire de ces conclusions compte tenu des défauts méthodologiques des revues et des études d'évaluation des résultats sur lesquelles elles se fondent. Une analyse de la distribution géographique des preuves montre que les évaluations des résultats des interventions pour prévenir la maltraitance des enfants sont extrêmement rares dans les pays à revenu faible et moyen et ne constituent que 0,6 % de l'ensemble de la base factuelle.

Conclusion Les preuves attestant l'efficacité de quatre des sept principaux types d'interventions pour prévenir la maltraitance des enfants sont prometteuses, même si ces preuves sont affaiblies par les problèmes méthodologiques et la rareté des évaluations des résultats d'interventions dans les pays à revenu faible et moyen.

Resumen

Prevención del maltrato infantil: revisión sistemática de las revisiones

Objetivo Sintetizar las pruebas recientes aportadas por revisiones sistemáticas e integrales de la eficacia de las intervenciones universales o selectivas para prevenir el maltrato infantil, evaluar la calidad metodológica de las revisiones y de los estudios de evaluación de los resultados incluidos en ellas, y elaborar un mapa de la distribución geográfica de los datos.

Métodos Se realizó una revisión sistemática de las revisiones. La calidad de las revisiones sistemáticas se valoró con un instrumento de evaluación de múltiples revisiones sistemáticas (AMSTAR), y la calidad de los estudios de evaluación de los resultados incluidos en ellas con indicadores de la validez interna y la validez conceptual de las medidas de los resultados.

Resultados La revisión se centró en siete tipos principales de intervenciones: visitas a domicilio, educación de los padres, prevención del abuso sexual infantil, prevención de los traumatismos craneales por maltrato, intervenciones con múltiples componentes, intervenciones basadas en los medios de comunicación, y grupos de apoyo y entreauda. Cuatro de las

siete (visitas a domicilio, educación de los padres, prevención de los traumatismos craneales por maltrato e intervenciones con múltiples componentes) fueron prometedoras para evitar que se produzca el maltrato infantil. Tres (visitas a domicilio, educación de los padres y prevención del abuso sexual infantil) parecen ser eficaces para reducir los factores de riesgo de maltrato infantil, aunque estas conclusiones son provisionales, teniendo en cuenta las deficiencias metodológicas de las revisiones y de los estudios en los que se basan. El análisis de la distribución geográfica de los datos revela que los estudios sobre los resultados de las intervenciones de prevención del maltrato son extremadamente raros en los países de bajos y medianos ingresos (0,6% de la totalidad de dichos estudios).

Conclusión Las pruebas sobre la eficacia de cuatro de los siete tipos de intervenciones principales para prevenir el maltrato infantil son prometedoras, aunque se ven debilitadas por los problemas metodológicos y la escasez de estudios de evaluación de los resultados procedentes de los países de bajos y medianos ingresos.

ملخص

اتقاء سوء معاملة الأطفال: مراجعة منهجية للمراجعات

سوء المعاملة الفعلي للأطفال، وهذه التدخلات هي الزيارة المنزلية، وتثقيف الوالدين، ورضع الرأس الانتهاكي، والتدخلات المتعددة المكونات. فيما اتضح أن ثلاثة تدخلات كانت فعالة في تخفيف عوامل الاختطار المرتبطة بسوء معاملة الأطفال. وهذه التدخلات هي: الزيارة المنزلية؛ وتثقيف الوالدين؛ واتقاء انتهاك الأطفال. ورغم أن هذه الاستنتاجات غير نهائية بسبب جوانب القصور في منهجية المراجعات وفي دراسات تقييم الحاصل التي استمدت منها. كما أظهر تحليل التوزيع الجغرافي للبيانات أن تقييمات الحاصل لتدخلات اتقاء سوء معاملة الأطفال شحيحة جداً في البلدان المنخفضة الدخل والمتوسطة الدخل، ولا تشكل أكثر من 0.6% من أساس البيئات. الاستنتاج: تتمتع أربعة من بين سبعة أمط لاتقاء سوء معاملة الأطفال بفعالية واعدة، إلا أن مما يضعفها ما تعاني منه من مشكلات في المنهجية، وقلة التقييم للحاصل في البلدان المنخفضة الدخل والمتوسطة الدخل.

الهدف: تجميع وتشكيل البيئات الحالية انطلاقاً من مراجعات منهجية وشاملة حول فعالية التدخلات الشاملة الموصى بها لاتقاء سوء معاملة الأطفال، ولتقييم جودة منهجية المراجعات وحاصل دراسات التقييم التي ارتكزت عليها، ورسم خرائط للتوزيع الجغرافي للبيئات.

الطريقة: أجرى الباحثون مراجعة منهجية للمراجعات، وقيموا جودة المراجعات المنهجية مستخدمين أداة تقييم المراجعات المنهجية المتعددة، وقيموا جودة تقييمات الحاصل باستخدام مؤشرات للمصدوقية الداخلية وللمصدوقية الهيكلية لقياسات الحاصل.

الموجودات: ركزت المراجعة على سبعة أمط من التدخلات: الزيارة المنزلية، تثقيف الوالدين، اتقاء الانتهاك الجنسي للأطفال، اتقاء رضع الرأس الانتهاكي، والتدخلات المتعددة المكونات، والتدخلات المرتكزة على الإعلام، ومجموعات الدعم والمساعدة المتبادلة. وقد أبدت أربعة تدخلات أملاً واعداً في اتقاء

References

1. Anda RF, Felitti VJ, Bremner JD, Walker JK, Whitfield C, Perry BD, et al. The enduring effects of abuse and related adverse experiences in childhood: a convergence of evidence from neurobiology and epidemiology. *Eur Arch Psychiatry Clin Neurosci* 2006;256:174-86. PMID:16311898 doi:10.1007/s00406-005-0624-4
2. MacMillan HL, Jamieson E, Wathen C, Boyle M, Walsh C, Omura J, et al. Development of a policy-relevant child maltreatment research strategy. *Milbank Q* 2007;85:337-74. PMID:17517119 doi:10.1111/j.1468-0009.2007.00490.x
3. Knudsen EI, Heckman JJ, Cameron JL, Shonkoff JP. Economic, neurobiological, and behavioural perspectives on building America's future workforce. *Proc Natl Acad Sci USA* 2006;103:10155-62. PMID:16801553 doi:10.1073/pnas.0600888103
4. *Preventing violence and reducing its impact: how development agencies can help*. Geneva: World Health Organization; 2008.
5. Runyan DK, Eckenrode J. International perspectives on the epidemiology of child neglect and abuse. *Annales Nestle* 2004;62:1-12.
6. Runyan DK. The challenges of assessing the incidence of inflicted traumatic brain injury. *Am J Prev Med* 2008;34:S112-5. PMID:18374259 doi:10.1016/j.amepre.2008.01.011
7. Kilburn MR, Karoly LA. *The economics of early childhood policy: what the dismal science has to say about investing in children*. Santa Monica, CA: Rand Corporation; 2008.
8. Leventhal JM. Getting prevention right: maintaining the status quo is not an option. *Child Abuse Negl* 2005;29:209-13. PMID:15820535 doi:10.1016/j.chiabu.2005.02.008
9. Barlow J, Simkiss D, Stewart Brown S. Interventions to prevent or ameliorate child physical abuse and neglect: findings from a systematic review of reviews. *Journal Children's Services* 2006;1:6-28.
10. Bull J, McCormick G, Swann C, Mulvihill C. *Ante- and post-natal home-visiting programmes: a review of reviews* [Evidence briefing]. London: Health Development Agency; 2004.
11. Davis MK, Gidycz CA. Child sexual abuse prevention programs: a meta-analysis. *J Clin Child Psychol* 2000;29:257-65. PMID:10802834 doi:10.1207/S15374424jccp2902_11
12. Geeraert L, Van D, Noortgate W, Grietens H, Onghena P. The effects of early prevention programs for families with young children at risk for physical child abuse and neglect: a meta-analysis. *Child Maltreat* 2004;9:277-91. PMID:15245680 doi:10.1177/1077559504264265
13. Lundahl BW, Nimer J, Parsons B. Preventing child abuse: a meta-analysis of parent training programs. *Res Soc Work Pract* 2006;16:251-62. doi:10.1177/1049731505284391
14. MacLeod J, Nelson G. Programs for the promotion of family wellness and the prevention of child maltreatment: a meta-analytic review. *Child Abuse Negl* 2000;24:1127-49. PMID:11057701 doi:10.1016/S0145-2134(00)00178-2
15. Sweet MA, Appelbaum MI. Is home visiting an effective strategy? A meta-analytic review of home visiting programs for families with young children. *Child Dev* 2004;75:1435-56. PMID:15369524 doi:10.1111/j.1467-8624.2004.00750.x
16. Zwi KJ, Woolfenden SR, Wheeler DM, O'Brien TA, Tait P, Williams KW. School-based education programmes for the prevention of child sexual abuse. *Cochrane database of systematic reviews (Online)* 2007(3):CD004380.
17. Bilukha O, Hahn RA, Crosby A, Fullilove MT, Liberman A, Moscicki E, et al. The effectiveness of early childhood home visitation in preventing violence: a systematic review. *Am J Prev Med* 2005;28:11-39. PMID:15698746 doi:10.1016/j.amepre.2004.10.004
18. Elkan R, Kendrick D, Hewitt M, Robinson J, Tolley K. The effectiveness of domiciliary home visiting: a systematic review of international studies and a selective review of the British literature. *Health Technol Assess* 2000;4:1-339.
19. Higgins D, Bromfield L, Richardson N. The effectiveness of home visiting programs for preventing child maltreatment. In: *Child abuse prevention: what works?* Melbourne, Vic.: Australian Institute of Family Studies, National Child Protection Clearinghouse; 2006. Available from: <http://www.aifs.gov.au/nch/pubs/brief/rb2/rb2.html> [accessed on 15 March 2009].
20. Holzer P, Bomfield L, Richardson N. The effectiveness of parent education programs for preventing child maltreatment. In: *Child abuse prevention: what works?* Melbourne, Vic.: Australian Institute of Family Studies, National Child Protection Clearinghouse; 2006. Available from: <http://www.aifs.gov.au/nch/pubs/brief/rb1/rb1.html> [accessed on 15 March 2009].
21. Klevens J. Prevention of inflicted childhood neurotrauma: what we know, what we don't, and what we need to know. In: Reece R, Nicholson C, eds. *Inflicted childhood neurotrauma: proceedings of a multi-disciplinary, modified, evidence-based conference*. Elk Grove Village, IL: American Academy of Pediatrics; 2003. pp. 269-279.
22. MacMillan HL. Preventive health care, 2000 update: prevention of child maltreatment. *CMAJ* 2000;163:1451-8. PMID:11192650
23. MacIntyre D, Carr A. Prevention of child sexual abuse: implications of program evaluation research. *Child Abuse Rev* 2000;9:183-99. doi:10.1002/1099-0852(200005/06)9:3<183::AID-CAR595>3.0.CO;2-I
24. Chaffin M, Schmidt S. An evidence-based perspective on interventions to stop or prevent child abuse. In: Lutzker JR, ed. *Preventing violence: research and evidence-based intervention strategies*. Washington, DC: American Psychological Association; 2006. pp. 49-68.
25. Daro DA, McCurdy KP. Interventions to prevent child maltreatment. In: Doll LS, Bonzo SE, Mercy JA, Sleet DA, eds. *Handbook of injury and violence prevention*. New York, NY: Springer Science + Business Media; 2007. pp. 137-155.

26. Hébert M, Tourigny M. Child sexual abuse prevention: a review of evaluative studies and recommendations for program development. In: Shohov SP, ed. *Advances in psychology research, volume 32*. New York, NY: Nova Science Publishers; 2004. pp. 111-143.
27. Kees MR, Bonner BL. Child abuse prevention and intervention services. In: Ric G, Roberts M, eds. *Handbook of mental health services for children, adolescents, and families*. New York, NY: Kluwer Academic/Plenum; 2005.
28. Krugman SD, Lane W, Walsh C. Update on child abuse prevention. *Curr Opin Pediatr* 2007;19:711-8. PMID:18025942 doi:10.1097/MOP.0b013e3282f1c7e1
29. Mace PG. What works in prevention of child sexual abuse: child-focused prevention techniques. In: Kluger M, Alexander G, Curtis PA, eds. *What works in child welfare*. Washington, DC: CWLA Press; 2000.
30. MacMillan HL, Jamieson E, Wathen C, Boyle M, Walsh C, Omura J, et al. Development of a policy-relevant child maltreatment research strategy. *Milbank Q* 2007;85:337-74. PMID:17517119 doi:10.1111/j.1468-0009.2007.00490.x
31. Olds D, Hill P, Robinson J, Song N, Little C. Update on home visiting for pregnant women and parents of young children. *Curr Probl Pediatr* 2000;30:109-41. doi:10.1067/mps.2000.105091
32. Olds DL, Sadler L, Kitzman H. Programs for parents of infants and toddlers: recent evidence from randomized trials. *J Child Psychol Psychiatry* 2007;48:355-91. PMID:17355402 doi:10.1111/j.1469-7610.2006.01702.x
33. Rubin D, Lane W, Ludwig S. Child abuse prevention. *Curr Opin Pediatr* 2001; 13:388-401. PMID:11801882 doi:10.1097/00008480-200110000-00002
34. Chaffin M. Letter to the editor. *Child Abuse Negl* 2005;29:241-9. doi:10.1016/j.chiabu.2005.02.004
35. Doll LS, Bonzo SE, Mercy JA, Sleet DA. *Handbook of injury and violence prevention*. New York, NY: Springer Science + Business Media; 2007.
36. Shea BJ, Grimsha JM, Wells GA, Boers M, Andersson N, Hamel C, et al. Development of ASMTAR: a measurement tool to assess the methodological quality of systematic reviews. *BMC Med Res Methodol* 2007;7:10. PMID:17302989 doi:10.1186/1471-2288-7-10
37. Shea BJ, Bouter LM, Peterson J, Boers M, Andersson N, Ortiz Z, et al. External validation of a measurement tool to assess systematic reviews (AMSTAR). *PLoS One* 2007;2:e1350. doi:10.1371/journal.pone.0001350
38. Olds DL, Eckenrode J, Henderson CR Jr, Kitzman H, Powers J, Cole R, et al. Long-term effects of home visitation on maternal life course and child abuse and neglect: fifteen-year follow-up of a randomized trial. *JAMA* 1997;278:637-43. PMID:9272895 doi:10.1001/jama.278.8.637
39. Finkelhor D, Asdigian N, Dziuba-Leatherman J. The effectiveness of victimization prevention instruction: an evaluation of children's responses to actual threats and assaults. *Child Abuse Negl* 1995a;19:141-53. PMID:7780777 doi:10.1016/0145-2134(94)00112-8
40. Gibson LE, Leitemberg H. Child sexual abuse prevention programs: do they decrease the occurrence of child sexual abuse? *Child Abuse Negl* 2000;24:1115-25. PMID:11057700 doi:10.1016/S0145-2134(00)00179-4
41. Dias MS, Smith K, deGuehery K, Mazur P, Li V, Shaffer ML. Preventing abusive head trauma in infants and young children: a hospital-based, parent education program. *Pediatrics* 2005;115:e470-7. PMID:15805350 doi:10.1542/peds.2004-1896
42. Kitzman H, Olds DL, Henderson CR, Hanks C, Cole R, Tatelbaum R, et al. Effect of prenatal and infancy home visitation by nurses on pregnancy outcomes, childhood injuries, and repeated childbearing. *JAMA* 1997;278:644-52. PMID:9272896 doi:10.1001/jama.278.8.644
43. Shadish WR, Cook TD, Campbell DT. *Experimental and quasi-experimental designs: for generalized casual inference*. Boston, MA: Houghton Mifflin Company; 2002.
44. Flay BR, Biglan A, Boruch RF, Castro FG, Gottfredson D, Kellam S, et al. Standards of evidence: criteria for efficacy, effectiveness and dissemination. *Prev Sci* 2005;6:151-75. PMID:16365954 doi:10.1007/s11121-005-5553-y
45. Chaffin M, Bard D. Impact of interventional surveillance bias on analyses of child welfare report outcomes. *Child Maltreat* 2006;11:301-12. PMID:17043315 doi:10.1177/1077559506291261
46. Chaffin M, Valle LA. Dynamic prediction characteristics of the Child Abuse Potential Inventory. *Child Abuse Negl* 2003;27:463-81. PMID:12718957 doi:10.1016/S0145-2134(03)00036-X
47. Cook TD, Campbell DT. *Quasi-experimentation: design and analysis issues for field settings*. Chicago, IL: Rand-McNally; 1979.
48. Mrazek PJ, Haggerty RJ. *Reducing risks for mental disorders: frontiers for preventive intervention research*. Washington, DC: National Academy Press; 1994.
49. MacMillan HL, Wathen CN, Barlow J, Fergusson DM, Leventhal JM, Taussig HN. Interventions to prevent child maltreatment and associated impairment. *Lancet* 2008;373:250-66. PMID:19056113 doi:10.1016/S0140-6736(08)61708-0
50. Farrington DP. Methodological quality standards for evaluation research. *Ann Am Acad Pol Soc Sci* 2003;587:49-68. doi:10.1177/0002716202250789