BMJ Open

Interventions for expectant and new parents who are at increased risk for perpetrating child abuse and neglect: protocol for a systematic review and meta-analysis

Hiroki Tamon [1,2,3] Maiko Suto,[4] Kunio Ogawa,[4] Kenji Takehara,[4] Yoshiyuki Tachibana[1,5,6]

To cite: Tamon H, Suto M, Ogawa K, *et al*. Interventions for expectant and new parents who are at increased risk for perpetrating child abuse and neglect: protocol for a systematic review and meta-analysis. *BMJ Open* 2022;**12**:e064603. doi:10.1136/bmjopen-2022-064603

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2022-064603).

Received 10 May 2022
Accepted 07 November 2022

For numbered affiliations see end of article.

Correspondence to
Dr Hiroki Tamon;
hiroki.tamon@gmail.com

ABSTRACT

Introduction The prevention of child abuse and neglect is an urgent matter given the serious effects persisting into adulthood, and the increased risk of the offspring of abused children being abusive themselves. Intervening as early as possible may prevent abuse that can begin in infancy. Although several systematic reviews have investigated the effects of interventions on populations who are at increased risk for perpetrating child abuse and neglect, few studies have focused on women or interventions that start during perinatal periods. This study aims to describe a systematic review to examine the effects of interventions to prevent child abuse and neglect that begin during pregnancy and immediately after childbirth (less than 1 year). The study will involve performing a systematic review and meta-analysis based on the latest research articles and a broader literature search.

Methods and analysis The protocol was prepared using the 2015 statement of Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols. The review will follow Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. The literature search will be performed using the MEDLINE, PsycINFO, Embase and Cochrane Central Register of Controlled Trials databases from inception onward. Randomised controlled trials of interventions that begin during pregnancy or the first year postpartum, designed to prevent child abuse and neglect in families who are at increased risk for these issues, will be included. Data collection, quality assessment and statistical syntheses will be conducted by following the methods in the protocol that are predefined. Any index of child maltreatment will be included as a primary outcome. A meta-analysis and sub-group analyses will be considered based on the characteristics of interventions.

Ethics and dissemination This study does not require ethical approval. The findings will be presented at conferences and will be submitted to a peer-reviewed journal.

PROSPERO registration number CRD42021266462.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This study will systematically review and analyse evidence on the effectiveness of interventions to prevent child abuse and neglect among pregnant and postpartum women.
⇒ This study will investigate a broader range of electronic bibliographic databases, including MEDLINE, PsycINFO, Embase and CENTRAL, using a systematic search strategy.
⇒ The study will be based on the latest articles, and the publication period will not be limited.
⇒ As we will only include peer-reviewed articles written in English, a publication bias may occur that excludes related research published in other languages and grey literature.
⇒ Despite the broad range of databases to be searched, there are others that we will not utilise, so it is possible that some studies may be missed.

INTRODUCTION

The prevention of child abuse and neglect has always been a critical issue in child health and welfare. Child abuse is usually divided into the following four categories: physical abuse, sexual abuse, neglect and emotional abuse. Studies examining the prevalence of child maltreatment have reported ranges from 12.7% to 36.3% for self-reported cases and from 0.3% to 0.4% for informant reports.[1] Childhood abuse and neglect have serious consequences that may continue into adulthood.[2–4] Several studies have reported an association between childhood abuse experiences and later depressive and anxiety symptoms,[5 6] and another study reported adverse effects on later cognitive functioning.[7] Therefore, the prevention of child abuse and neglect is an urgent matter.

Baldwin *et al*[8] conducted a large cohort study and reported that younger maternal age, lower maternal education level, maternal mental illness, maternal smoking in pregnancy, single motherhood, larger family size, multiple deprivations, social housing, paternal

unemployment and the receipt of means-tested welfare benefits are antenatal risk factors for child maltreatment. They also reported that a greater total number of risk factors during pregnancy increased the risk of subsequent maltreatment concerns. Parents' abusive experiences have also been demonstrated to increase the risk of those abusing their own children.[9–11] As almost half of child maltreatment deaths involve infants younger than 1 year of age,[12] early preventive interventions, especially during pregnancy or postnatal periods, are particularly important for expectant and new parents who are at increased risk for perpetrating child abuse and neglect.

Home-visitation and parent-training programmes are widely implemented worldwide as child abuse prevention programmes to reduce the burden on parents, provide support and educate parents on evidence based parenting methods, and they have been widely studied in previous systematic reviews and meta-analyses. Several researchers[13–16] have reported the effects of home visitation on preventing child abuse and neglect; other researchers[13 17–20] have reported the effects of parent-training programmes. These reports have included studies of the general population, and the age of the targeted children has varied in existing research. Systematic reviews in a mixed population reported no difference in effect by sample type.[8 15] Meanwhile, Casillas *et al*[16] reported that targeted programmes have a greater effect than universal programmes. Chen and Chan[13] conducted a systematic review for diverse age groups and reported that early start intervention (beginning at or before pregnancy) exhibits better outcomes. However, Gubbels *et al*[20] found no difference in the effect of child age; other studies did not consider differences in age.[17 19]

Pinquart and Teubert[21] conducted a meta-analysis that searched for the effects of parenting education with expectant and new parents. They included 142 papers on interventions that began during pregnancy or in the first 6 months after birth and found that interventions had small to very small significant effects on parenting, parental stress and child abuse. Levey *et al*[15] conducted a systematic review of randomised controlled trials of interventions in which the participants were pregnant women or new mothers identified as at increased risk for perpetrating child abuse and neglect. Of the eight studies they identified, only three found statistically significant reductions in abuse by any measure, and only two found reductions in incidents reported to child protective services (CPS). They found that only home visitation has a significant evidence base for reducing child abuse.

In considering interventions starting in the perinatal period that are effective at preventing child abuse and neglect, it is important to support fathers and other caregivers as well as mothers, as they may also be at risk of perpetrating abuse and neglect. However, as mentioned above, it is important to consider interventions targeting mothers who experience childbirth as single mothers or who are exposed to intimate partner violence. To consider a consistent population, we have only targeted women in this review.

The purpose of this study is (1) to update the systematic review conducted by Levey *et al*[15] with the latest research, (2) to conduct a meta-analysis to examine the effects of intervention programmes initiated in the perinatal period for families who are at increased risk for perpetrating child abuse and neglect and (3) to conduct a subgroup analysis to examine which characteristics of the interventions are more effective to prevent child abuse and neglect.

METHODS AND ANALYSIS

Patient and public involvement

This study had no direct patient or public involvement.

Study design

We have registered this systematic review and meta-analysis protocol with the International Prospective Register of Systematic Reviews. This protocol was based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols 2015 statement[22] (online supplemental table 1). The final review will be created according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement.[23]

Search strategy

We will perform literature searches with the following electronic databases from their inception onward: MEDLINE, PsycINFO, Embase and Cochrane Central Register of Controlled Trials (CENTRAL). A draft MEDLINE search strategy developed by one of the authors (KO) is described in online supplemental table 2. After the MEDLINE strategy is completed, it will be adapted to the subject headings and syntax of the other databases. Our search terms consist of "perinatal," "intervention program," "child abuse" and "randomized controlled trials" (RCTs). We will search for the latest research articles.

Study records

We will upload the studies collected through electronic and manual searches to Rayyan,[24] an internet-based software programme facilitating collaboration among reviewers during the study-selection process. Citations, titles and abstracts will be uploaded to Rayyan. Duplicates will be removed. Then, full-text screening will be conducted using EndNote,[25] a reference management software package.

Eligibility criteria

We will include original studies of RCTs; we will exclude articles that do not report original data (eg, review, meta-analyses and commentary papers). We will not impose limits on the publication date. The review will include only full-text, peer-reviewed articles published in the English language. The following participants, interventions, comparisons, outcomes and study criteria (PICOS) of the studies will be included:

- (P) Studies with participants who are women during pregnancy and less than 1 year after childbirth at increased risk for perpetrating child abuse and neglect (determined to be at increased risk for perpetrating child abuse and neglect for any reason, eg, mental illness, low income, social isolation, drug/alcohol use, smoking and domestic violence) will be included. No age restrictions will be imposed. We will exclude studies where the participants were foster families. We will also exclude studies involving participants who started interventions more than 1 year after childbirth. We will not specify the level of income in the countries where the studies were conducted.
- (I) Psychological and educational interventions that aim to prevent child abuse and/or neglect will be considered. Psychological interventions are defined as 'interventions aimed at reducing the mother's emotional burden'. Educational interventions are defined as 'interventions aimed at providing appropriate knowledge and coping strategies for pregnancy, childbirth, and child care'. We will not limit the type of intervention (eg, perinatal-specific programmes) as long as the intervention is conducted during the time period specified for the current study.
- Child abuse and neglect are defined and identified by the study authors. We will exclude interventions that aim to prevent specific risks but do not measure the effects of preventing child abuse and neglect (eg, antenatal and postnatal depression, drug/alcohol use, HIV infection, smoking, intimate partner violence, family planning and breastfeeding).
- (C) Routine care, another type of intervention, placebo groups and waiting list groups, or no intervention will be included in the comparison group.
- (O) Any index of child maltreatment (reports of child abuse, CPS case records, injury reports, hospital admission and emergency room visits) will be included as a primary outcome. Additional outcomes will include measures of parenting stress (eg, Parenting Stress Index[26]) and inappropriate parenting behaviour (eg, Conflict Tactics Scales, Parent-Child Version[27]; Adult Adolescent Parenting Inventory—version 2[2829]; Child Abuse Potential Inventory[30] and CARE-Index[31]). If the included study has more than two parts, we will compare each intervention with the usual care. The final evaluation period will be considered if more than one evaluation point is available.
- (S) Peer-reviewed articles written in English will be included. We will only include RCTs. The publication period will not be limited.

Study selection

In stage 1, two authors (HT and MS) will independently screen the titles and abstracts of all candidate studies and exclude those not applicable. Then, disagreements will be resolved by the two authors, and a final list will be agreed on. If agreement is not obtained, a third senior author (KT or YT) will arbitrate. If the disagreement continues, the article will proceed to the second stage. In stage 2, two authors (HT and MS) will independently evaluate the eligibility of the full-text versions of articles that have passed stage 1. Two authors (HT and MS) will resolve discrepancies by consensus, and if necessary, a third senior author (KT or YT) will act as arbitrator.

Data extraction

HT and MS will independently retrieve the following related information from selected studies: author, year, publication language, location (country), intervention period (prenatal/postnatal/both), screening period for being at increased risk for perpetrating child abuse and neglect, type of risk, sample size (intervention and control), intervention programme, setting (home or centre), focus (support or packaged programme), delivery (individual or group), occupation type of person delivering the intervention, duration of follow-up, frequency of sessions, comparison programme, evaluation period, measurement tools, study results and funding sources. The senior reviewers (KT and YT) will reconcile any disagreements.

Quality assessment and risk of bias

Two review authors (HT and MS) will independently check the risk of bias in each included study; a third review author (KT or YT) will resolve discrepancies by negotiation. We will use the revised Cochrane risk-of-bias tool for randomised trials to check the risk of bias in each study.[32] The tool includes the following domains: randomisation process, deviations from the intended interventions, missing outcome data, measurement of the outcome, selection of the reported result and overall risk of bias. The assessment process will involve extracting the appropriate information from each study (eg, a detailed description of the method used for the randomisation process) and evaluating the risk of bias in that area (eg, adequate randomisation process). We will determine risk of bias for each item as low, high or of some concern while including a supporting description from the study report along with the reasoning for our judgement in a risk-of-bias table.

Statistical analysis

We plan to provide a narrative synthesis of the characteristics and findings from the included studies using text and tables. The synthesis will be based on intervention type and will describe the characteristics of each of the included studies and supply information about the effective measures for relevant outcomes and study quality.

A meta-analysis can be conducted depending on the availability of data (eg, risks ratio, mean difference) and degree of heterogeneity of each study. If there are studies with the same types of intervention and outcome measurement, we will conduct a random-effect meta-analysis and present a forest plot generated using the Review Manager V.5.4 software.

Subgroup analyses will be considered based on the characteristics of the participants (eg, age and socioeconomic status), type of intervention (eg, duration, timing, frequency, setting (home or centre), focus (support or packaged programme) and delivery (individual or group)), timing of the intervention (during pregnancy and/or post partum), occupation type of person delivering the intervention and assessment points. A sensitivity analysis will be conducted to assess the effect of studies with a high risk of bias.

Reporting bias assessment

If there are 10 or more studies in the meta-analysis, we will examine reporting biases with funnel plots and visually consider any funnel plot asymmetry.

Certainty assessment

We will evaluate the quality of the evidence across studies by using the Grading of Recommendations, Assessment, Development, and Evaluation approach. The quality of evidence of each result will be evaluated by using the study's limitation, imprecision, indirectness, inconsistency and publication bias.[33]

ETHICS AND DISSEMINATION

This study does not require ethical approval. The findings will be presented at conferences, and the paper will be submitted to a peer-reviewed journal.

DISCUSSION

This study will systematically review and analyse evidence on the effectiveness of interventions to prevent child abuse and neglect among pregnant and postpartum women. The strength of this study is that it will investigate a broader range of electronic bibliographic databases, including MEDLINE, PsycINFO, Embase and CENTRAL, using a systematic search strategy. The study will be based on the latest articles, and the publication period will not be limited.

Since child abuse and neglect have severe outcomes, the findings of this study may be helpful for the prevention of child abuse and neglect in clinical and policy contexts: that is, the results will provide a basis for the development of evidence-based intervention programmes and child abuse prevention policies. Moreover, this study will encourage future studies with more evidence-based intervention programmes and illuminate the direction of research on the prevention of child abuse and neglect.

However, the planned systematic review and meta-analysis has several limitations. We will only include peer-reviewed articles written in English; therefore, a publication bias that excludes related research published in other languages and grey literature is likely. Another limitation will be that we only access limited databases. Additionally, using different methods to assess child abuse and neglect may cause heterogeneity among studies. Although we plan to limit our target of intervention to mothers in this review, it goes without saying that the responsibility for parenting does not lie solely with the mother, but that comprehensive support for the entire family is essential.

Author affiliations
[1]Division of Infant and Toddler Mental Health, Department of Psychosocial Medicine, National Center for Child Health and Development, Setagaya-ku, Japan
[2]Graduate School of Medicine, Tohoku University, Miyagi, Japan
[3]Department of Functional Brain Imaging, Institute of Development, Aging and Cancer (IDAC), Tohoku University, Miyagi, Japan
[4]Department of Health Policy, National Center for Child Health and Development, Setagaya-ku, Japan
[5]Department of Perinatal Mental Health, Shinshu University School of Medicine, Nagano, Japan
[6]Smart-Aging Research Center, IDAC, Tohoku University, Miyagi, Japan

Acknowledgements We thank Prof. Ryuta Kawashima for his kind guidance.

Contributors HT, MS, KO, KT and YT designed the study. HT wrote the first draft of the manuscript and all other authors revised the manuscript critically. KO executed the search strategies. All authors approved the final version of the manuscript.

Funding This study was supported by the Health and Labour Science Research Grant on Children, Youth, and Families (20DA1009) provided by the Japanese Ministry of Health, Labour, and Welfare for YT. This study was also supported by the Japan Agency for Medical Research and Development (AMED) (21he2202007h0001) for YT.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

ORCID iD
Hiroki Tamon http://orcid.org/0000-0002-5620-6118

REFERENCES

1 Stoltenborgh M, Bakermans-Kranenburg MJ, Alink LRA. The prevalence of child maltreatment across the globe: review of a series of meta-analyses. *Child Abuse Rev.* 2015;24:37–50.
2 Trickett PK, Noll JG, Putnam FW. The impact of sexual abuse on female development: lessons from a multigenerational, longitudinal research study. *Dev Psychopathol* 2011;23:453–76.
3 Jonson-Reid M, Kohl PL, Drake B. Child and adult outcomes of chronic child maltreatment. *Pediatrics* 2012;129:839–45.
4 Gilbert R, Widom CS, Browne K, *et al*. Burden and consequences of child maltreatment in high-income countries. *Lancet* 2009;373:68–81.
5 Gardner MJ, Thomas HJ, Erskine HE. The association between five forms of child maltreatment and depressive and anxiety disorders: a systematic review and meta-analysis. *Child Abuse Negl* 2019;96:104082.

6 Li M, D'Arcy C, Meng X. Maltreatment in childhood substantially increases the risk of adult depression and anxiety in prospective cohort studies: systematic review, meta-analysis, and proportional attributable fractions. *Psychol Med* 2016;46:717–30.
7 Su Y, D'Arcy C, Yuan S, *et al*. How does childhood maltreatment influence ensuing cognitive functioning among people with the exposure of childhood maltreatment? A systematic review of prospective cohort studies. *J Affect Disord* 2019;252:278–93.
8 Baldwin H, Biehal N, Allgar V, *et al*. Antenatal risk factors for child maltreatment: linkage of data from a birth cohort study to child welfare records. *Child Abuse Negl* 2020;107:104605.
9 Berlin LJ, Appleyard K, Dodge KA. Intergenerational continuity in child maltreatment: mediating mechanisms and implications for prevention. *Child Dev* 2011;82:162–76.
10 Plant DT, Barker ED, Waters CS, *et al*. Intergenerational transmission of maltreatment and psychopathology: the role of antenatal depression. *Psychol Med* 2013;43:519–28.
11 Sidebotham P, Heron J, ALSPAC Study Team. Child maltreatment in the "children of the nineties": a cohort study of risk factors. *Child Abuse Negl* 2006;30:497–522.
12 US Department of Health and Human Services, Administration on Children, Youth and Families, Children's Bureau. Child Maltreat 2019, 2019. Available: https://www.acf.hhs.gov/sites/default/files/documents/cb/cm2019.pdf [Accessed 21 August 2022].
13 Chen M, Chan KL. Effects of parenting programs on child maltreatment prevention: a meta-analysis. *Trauma Violence Abuse* 2016;17:88–104.
14 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.
15 Levey EJ, Gelaye B, Bain P, *et al*. A systematic review of randomized controlled trials of interventions designed to decrease child abuse in high-risk families. *Child Abuse Negl* 2017;65:48–57.
16 Casillas KL, Fauchier A, Derkash BT, *et al*. Implementation of evidence-based home visiting programs aimed at reducing child maltreatment: a meta-analytic review. *Child Abuse Negl* 2016;53:64–80.
17 Altafim ERP, Linhares MBM. Universal violence and child maltreatment prevention programs for parents: a systematic review. *Psychosocial Intervention* 2016;25:27–38.
18 Lundahl BW, Nimer J, Parsons B. Preventing child abuse: a meta-analysis of parent training programs. *Res Soc Work Pract* 2006;16:251–62.
19 Vlahovicova K, Melendez-Torres GJ, Leijten P, *et al*. Parenting programs for the prevention of child physical abuse recurrence: a systematic review and meta-analysis. *Clin Child Fam Psychol Rev* 2017;20:351–65.
20 Gubbels J, van der Put CE, Assink M. The effectiveness of parent training programs for child maltreatment and their components: a meta-analysis. *Int J Environ Res Public Health* 2019;16:2404.
21 Pinquart M, Teubert D. Effects of parenting education with expectant and new parents: a meta-analysis. *J Fam Psychol* 2010;24:316–27.
22 Moher D, Shamseer L, Clarke M, *et al*. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Syst Rev* 2015;4:1.
23 Moher D, Liberati A, Tetzlaff J, *et al*. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med* 2009;6:e1000097.
24 Ouzzani M, Hammady H, Fedorowicz Z, *et al*. Rayyan-a web and mobile APP for systematic reviews. *Syst Rev* 2016;5:210.
25 EndNote TR. *Version x9*. London: Thomson Reuters, 2018.
26 Abidin RR. *Parenting stress index (PSI). 100*. Charlottesville: Pediatric Psychology Press, 1983.
27 Straus MA, Hamby SL, Finkelhor D, *et al*. Identification of child maltreatment with the parent-child conflict tactics scales: development and psychometric data for a national sample of American parents. *Child Abuse Negl* 1998;22:249–70.
28 Bavolek SJ. *Handbook for the adult-adolescent parenting inventory (AAPI)*. Eau Claire, WI: Family Development Associates, 1984.
29 Bavolek SJ, Keene RG. *Adult-adolescent parenting inventory AAPI-2: administration and development Handbook*. Park City, UT: Family Development Resources, 2001.
30 Milner JS, Gold RG, Wimberley RC. Prediction and explanation of child abuse: cross-validation of the child abuse potential inventory. *J Consult Clin Psychol* 1986;54:865–6.
31 Crittenden PM. Der CARE-Index ALS Hilfsmittel für Früherkennung, intervention und Forschung. *Frühförderung interdisziplinär* 2005;8:99–106.
32 Sterne JAC, Savović J, Page MJ, *et al*. Rob 2: a revised tool for assessing risk of bias in randomised trials. *BMJ* 2019;366:l4898.
33 Guyatt GH, Oxman AD, Schünemann HJ, *et al*. Grade guidelines: a new series of articles in the Journal of clinical epidemiology. *J Clin Epidemiol* 2011;64:380–2.