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What happens to children's mental health when we treat their parent's depression? We have no idea. An empty systematic review

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Abstract

Background: Parent depression is a well-established prospective risk factor for adverse offspring mental health. Multiple lines of evidence suggest that improvements in parent depression predicts improved offspring mental health. However, no systematic review has examined the impact on offspring of psychological treatment of purely parent depression after the postnatal period.

Aims: To systematically review the literature of randomised controlled trials examining the impact on offspring mental health outcomes of psychological interventions for parental depression after the postnatal period.

Method: We pre-registered our systematic review on PROSPERO (CRD42023408953), and searched the METAPSY database in April 2023 and October 2024, for randomised controlled trials of psychological interventions for adults with depression, which also included a child mental health or wellbeing outcome. We double screened 938 studies for inclusion using the 'Paper in a Day' approach. All included studies would be rated using the Cochrane Risk of Bias tool.

Results: We found no studies that met our inclusion criteria.

Conclusions: Robust research into psychological therapy for depression in adults outside the postnatal period has failed to consider the potential benefits for the children of those adults. This is a missed clinical opportunity to evaluate the potential preventive benefits for those children at risk of adverse psychological outcomes, and a missed scientific opportunity to test mechanisms of intergenerational transmission of risk for psychopathology. Seizing the clinical and scientific opportunities would require adult-focused mental health researchers to make inexpensive additions of child mental health outcomes measures to their evaluation projects.

Keywords: child mental health; intergenerational risk transmission; parent depression

Introduction

Observational studies of parental depression demonstrate adverse associations with offspring development, including early risk markers for later psychopathology, such as disorganised

attachment in the postnatal year (Hayes *et al.*, 2013); dysregulated behaviour in early childhood (Conroy *et al.*, 2012); less peer competence in middle childhood (Kersten-Alvarez *et al.*, 2012); and poorer academic performance in adolescence (Brophy *et al.*, 2021). Furthermore, offspring of parents who have lived experience of an episode of depression, compared with those of parents without this lived experience, have a 2- to 3-fold greater risk for major depressive disorder (Weissman *et al.*, 1997, Weissman *et al.*, 2006, Weissman *et al.*, 2016), and a significantly greater risk of externalising disorders (Brennan *et al.*, 2002).

Clearly, having parents with lived experience of an episode of depression represents a serious risk to children's wellbeing. But what happens if the parent's depression improves? Multiple lines of evidence have begun to amass regarding the relationship between changes in parents' depression symptoms and offspring psychopathology. One line of evidence pertains to the use of anti-depressant medication. For example, in the Sequenced Treatment Alternatives to Relieve Depression (STAR*D) trial, remission of maternal depression was associated with less severe offspring symptoms of internalising disorders (Foster *et al.*, 2008). A second line of evidence has focused on perinatal depression which is associated with negative effects on the mother–child relationship and poorer child cognitive, emotional and social developmental outcomes (Cooper and Murray, 1997; Goodman and Gotlib, 1999; Murray *et al.*, 2003; Thompson and Fox, 2010). In light of these risks, perinatal interventions have often focused on mothers' parenting behaviours and/or the mother–infant relationship, as well as on mothers' depression (Stein *et al.*, 2018). Letourneau *et al.* (2017) reported a systematic review of studies using a randomised controlled trial (RCT) or quasi-experimental design and found large effects at the end of treatment for both child development and mothers' parenting behaviours in a systematic review of literature examining the impact of psychological (e.g. cognitive behavioural therapy; interpersonal therapy) and parenting (e.g. home visiting, video feedback therapy) interventions for perinatal depression. Some studies had follow-up evaluations of children's outcomes beyond 12 months, up to 5 years, post-treatment (e.g. Kersten-Alvarez *et al.*, 2010; Murray *et al.*, 2003), although treatment effects on children were evident only for those families who reported stressful life events (Kersten-Alvarez *et al.*, 2010). Importantly, some earlier studies used non-RCT designs (Clark *et al.*, 2003; Fleming *et al.*, 1992) and the findings from these studies are subject to biases introduced by their designs. A third line of evidence relates to examining the impact of treating depression in mothers whose children were experiencing mental health difficulties. For example, in a randomised trial, Swartz *et al.* (2008) examined the impact of brief interpersonal psychotherapy for mothers whose children were receiving psychiatric treatment, and found, compared with treatment as usual, that improvements in mothers' depression were followed by improvement in offspring depression symptoms. This suggests that treating parental depression might have a positive impact on children's mental health. However, it should be noted that in this line of research, the offspring were usually in receipt of treatment for their own difficulties meaning that it is difficult to determine whether improvements in their mental health should be attributed to the care that their depressed mother received. Similarly, the results of these studies are not generalisable to populations of unselected children who may not yet be reporting any symptoms themselves.

Despite multiple lines of intervention research, the literature is lacking a systematic review of the impact on children of psychological treatment of parental depression beyond the postnatal period or in unselected children (i.e. who were not selected on the basis of pre-identified mental health difficulties). Cuijpers *et al.* (2008) reported a meta-analysis of the effects of psychological treatments for mothers with lived experience of depression on maternal (in eight studies) and child psychological outcomes (in five studies) within RCTs, and found a medium positive effect (Hedges' $g = 0.40$, 95% CI = 0.22–0.59) for child mental health. Crucially, however, of these five studies, three (Clark *et al.*, 2008; Forman *et al.*, 2007; Murray *et al.*, 2003) focused exclusively on the postnatal period and the other two (Swartz *et al.*, 2008; Verduyn *et al.*, 2003) only included

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mothers identified in light of existing child mental health problems. Furthermore, the interventions in four studies explicitly addressed children's outcomes (Clark *et al.*, 2008; Puckering *et al.*, 2010; Sheeber *et al.*, 2012; Verduyn *et al.*, 2003) by focusing on maternal parenting behaviours and/or mother–offspring relationships, as well as treating maternal depression.

Whilst clearly valuable, the reviews outlined above cast little light on the impact on offspring mental health outcomes of psychological therapy for a parent's depression beyond the perinatal period, or on unselected children. This is an important gap. For both clinical and theoretical reasons, it is crucial that we understand the impact on children of improvements in parental depression. RCT studies, which eliminate confounding biases, have offered the most useful clinical and theoretical evidence of the effects of a treatment on an outcome. Hence, we shall limit the focus of our review to studies that have used RCT designs (for a recent discussion of innovations in RCT design, see Fernainy *et al.*, 2024). This knowledge would open up new lines of research that help us to understand the intergenerational transmission of mental health, and would allow service providers to plan approaches that maximise the likelihood of good outcomes for the children of depressed parents.

Thus, the aim of the present study was to systematically review the literature of RCTs examining the impact on offspring mental health outcomes of psychological interventions for parental depression, after the postnatal period, and which focus entirely on treating parental depression (studies that also addressed parenting behaviours or gave any support directly to the child were excluded).

Method

We pre-registered our systematic review via the PROSPERO website (https://www.crd.york.ac.uk/prospero/display_record.php?RecordID = 408953) and followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Page *et al.*, 2021).

Eligibility criteria

Studies were eligible for inclusion in the review if:

(1) They recruited adults (aged 18+ years) who were a parent (including adoptive, biological, foster, grand, or other resident guardian);
(2) Adult participants were recruited as the primary participant, and on the basis of their own (probable) depressive disorder (rather than being identified secondary to identification of a difficulty in their child) (we operationalised 'probable depressive disorder' as ascertained via diagnostic interview and/or scoring at or above a clinical cut-off on a standardised measure of depression);
(3) The index participant received a psychological treatment for adult depression. Any treatment delivery format was eligible (e.g. individual, group, face-to-face, online, etc.) and no restrictions were placed on the setting where the psychological treatment was conducted, the number of sessions, or the duration of follow-up;
(4) They reported the results of an RCT evaluating the effects of the psychological treatment against a control group who were receiving a different intervention (e.g. any other psychological therapy) for comparison, or no intervention (for example, a waiting list control);
(5) They assessed any child mental health outcome (diagnosis and/or symptoms) and/or child wellbeing after the index parent had received psychological treatment for depression;
(6) They were primary research published in English in a peer-reviewed journal.

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Studies were excluded if:

(1) The intervention did not target adult depression as the primary focus, or was a pharmacological intervention, or focused specifically on perinatal depression, or focused on parenting or the parent–child relationship;
(2) The children of the index participants received any psychological intervention within the context of the study.

Information sources and search terms

The METAPSY depression psychotherapy database (Cuijpers, 2017) (www.metapsy.org) was used to identify all RCTs examining psychotherapy interventions for adults with depression. This database is updated every 4 months with systematic searches of four databases (PubMed, PsycINFO, Embase and the Cochrane Library) (this is reported in full here: https://docs.metapsy.org/uploads/protocol.pdf). For this project, on 26 April 2023, we used the database that had been updated on 1 September 2022. On 1 October 2024, we re-ran our search using the most recent update of the METAPSY database (updated on 1 January 2024). Full details of the search strategy are described in Cuijpers *et al.* (2023), with the full search terms available at: https://protectlab.shinyapps.io/depressionShinyWebsite/search_strings.pdf.

The terms used to create and update the METAPSY database extend to all fields, and are reported in full here: https://raw.githubusercontent.com/metapsy-project/data-depression-psyctr/22.0.2/metadata/search_string.txt.

Study selection

This systematic review was conducted using the 'Paper in a Day' approach (Larsen *et al.*, 2023), with the aim of completing the study selection, data extraction, analysis, and composition of the first draft of the paper in a single day (28 April 2023). Due to this, elements of the process were conducted in parallel to maximise efficiency (we updated our search on 1 October, 2024).

The full texts of studies ($k = 935$, plus the abstracts of $k = 3$ for which we were unable to obtain the full texts) from the 'adult' section of the METAPSY depression psychotherapy database were screened for inclusion. Studies from the 'child and adolescent' section of the METAPSY database were excluded from screening on the grounds that they were extremely unlikely to include any index participants who were themselves parents aged 18+ years. In the first stage of screening, the retrieved *full texts* of papers were independently screened twice by researchers, blind to others' assessments (MA, CB, BC, VEC, RLD, CE-P, GH, JH, KJL, AM, PM VP, JT and AT) for keywords relating to families using the following terms to identify papers relating to families: 'offspring', 'baby', 'infant', 'child', 'adolescent', 'youth', 'parent', 'mother', 'father'. They were also checked for presence of any outcome measures relating to children or parenting. The first rater checked texts using computer software, and the second rater checked the texts by reading them. In the second stage of screening, all 215 papers identified at stage 1 as potentially meeting inclusion criteria were then screened against the full inclusion and exclusion criteria by two researchers (PJL, AD or SC-H) by reading the full texts. Furthermore, in February 2025, we used artificial intelligence software (ChatGPT) to screen the available non-English language studies for terms relating to 'child' or 'parent'. (This was not a feature of our pre-registered study protocol, but overcomes the limitation of excluding studies based on the language in which they were reported.) See Fig. 1 for the PRISMA flowchart.

Data extraction

An Excel spreadsheet was designed to record information on 28 April 2023, from studies that met inclusion criteria. This recorded relevant information for each study including author,

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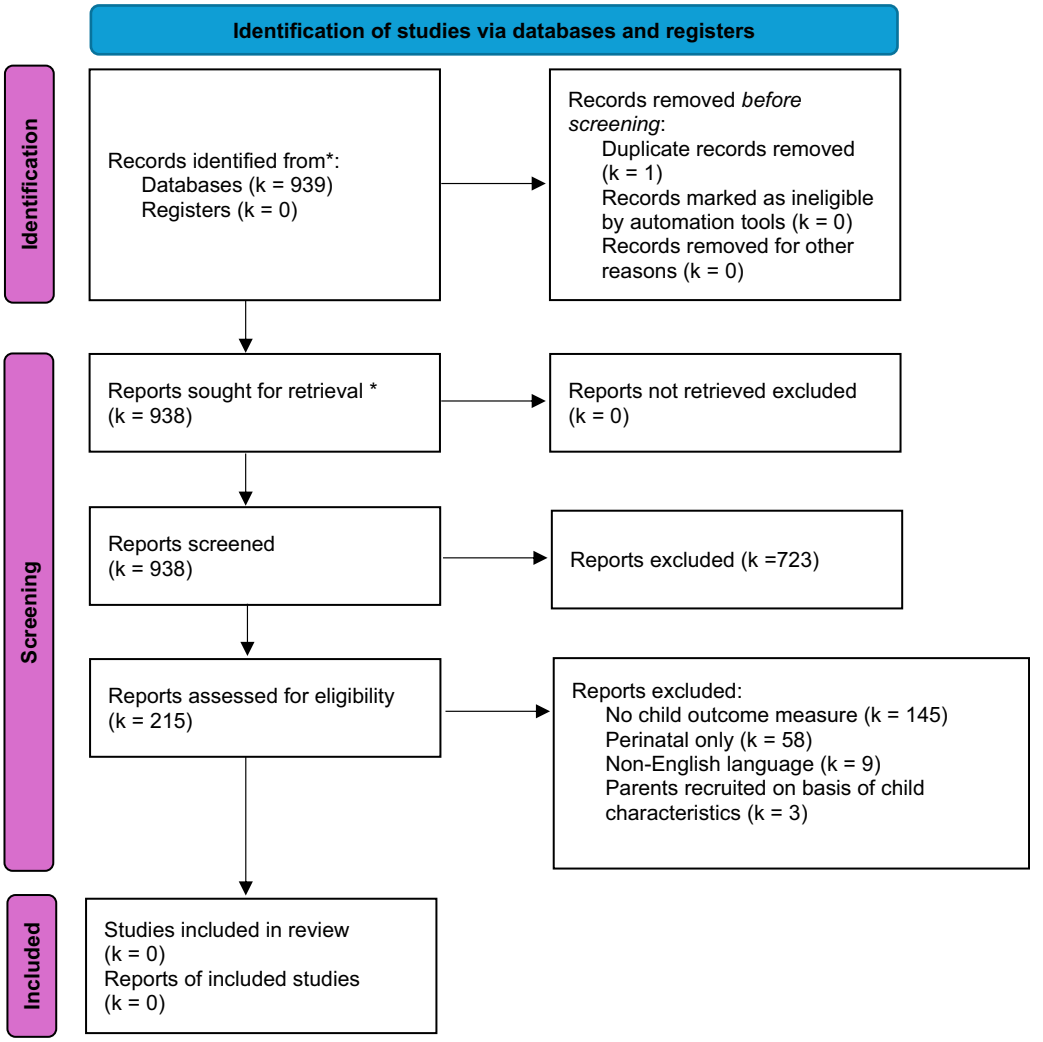

Figure 1. PRISMA flowchart. *All records were screened twice for 'child'-related words, first by using software, second by human eyes. From Page *et al*. (2021).

title, sample size, measures used to assess variables of interest, treatment and comparator characteristics, outcomes of interest, and effect sizes.

Quality assessment

Quality assessment was conducted by the Cuijpers *et al.* (2023) study team, who assessed the validity of all studies included in the METAPSY depression database using the Risk of Bias (RoB) assessment tool for randomised trials (Higgins and Green, 2011).

Planned synthesis of results

To facilitate comparison across studies, we planned to calculate effect sizes for the key analyses comparing child mental health and wellbeing outcomes after parents received an intervention for

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depression, with parents in a control group. To ensure consistency across studies, we would (re-) calculate effect sizes as Hedges' *g*, and estimate our meta-analytic effect size using a two- or three-level meta-analysis model (depending on whether individual studies report more than one effect) with random effects. We would calculate heterogeneity using the I^2 statistic (a value of 0% would indicate no heterogeneity and higher values, higher heterogeneity; heterogeneity of 25% is defined as the threshold for low, 50% for moderate and 75% for high; to account for uncertainty, we would calculate 95% confidence intervals for I^2). Furthermore, we planned to report the predictive intervals to estimate the range of the true effect. We planned to use visual inspection of funnel plots and QQ plots to detect potential biasing effects. Furthermore, we planned to assess asymmetry using Egger's test (Egger *et al.*, 1997) for two-level models, and a proxy Egger test for three-level models (Rodgers and Pustejovsky, 2021).

In the event that too few studies were retrieved for a meta-analytical synthesis, we planned to conduct a narrative synthesis of the results to summarise the results of available outcomes.

Results

We identified zero studies that met the inclusion criteria for this review.

Discussion

This study set out to determine whether purely treating a parent's depression with psychological intervention beyond the perinatal period has an impact on the well-established risk of poor mental health in their children. We were able to find no studies that met our robust criteria. This result is disappointing, but not surprising: in recent systematic reviews seeking to understand the impact on children of treating parental anxiety (Chapman *et al.*, 2022) and parental bipolar disorder and schizophrenia (Can *et al.*, 2024), we were also unable to find any robust evidence.

We aimed to find all RCTs that examined the simple impact on unselected offspring of treating their parent using a psychological intervention for depression. Studies that recruited participants on the basis of mental health difficulty in the child (rather than the parent) or focused on perinatal depression were excluded, as were studies where the intervention extended beyond treating the adult's depression (e.g. intervened with the child or gave parent management training). No studies that met these criteria were found. As a result, it is impossible to draw any conclusions about the impact of simply treating a parent with depression on their children's risk of poor outcomes.

This gap in our knowledge represents a considerable clinical and theoretical problem. Clinically, we do not know whether only treating a parent with depression reduces the risk of poor outcomes for their children, and, if it does, whether and to what extent the risk is remediated. If treating a parent's depression were proved to be sufficient, this could mitigate the impacts of parent depression on children and, in turn, could remove some considerable demand on child mental health services. Similarly, some adult mental health services (such as the Improving Access to Psychological Therapies/NHS Talking Therapies for anxiety and depression system in England) expedite the treatment of clients who are known to be parents, on the grounds that this is likely to be protective to their children, but it is presently unclear whether this approach is empirically justified. Theoretically, the knowledge would support a clearer and deeper understanding of how and why mental health problems run in families: if successful treatment of depression in parents were shown to reduce risk of poor mental health in their children, this would open new avenues of research, examining, for example, whether treating parental depression has an impact on parenting attitudes and behaviours, and providing some insight into the mechanisms involved in the intergenerational transmission of poor mental health.

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Although this systematic review returned no direct and robust evidence of the impact of simply treating parental depression on children's risk of poor mental health, there are, as outlined in the Introduction above, clues from other sources. Although studies that focused purely on depression in the perinatal period were excluded from this review, there is evidence from a small number of RCTs focused on this period suggesting that psychological treatment of parents with depression is associated with improved functioning in offspring (Cuijpers *et al.*, 2008).

So, it appears plausible that treating parental depression will have positive impacts on children's wellbeing. However, if this is, eventually, demonstrated to be the case, should this approach become the default? We would argue that although it might well be proven to be the first-line response when a parent is depressed, it should not be the only option. High quality depression interventions may not always be available to, or wanted by, the parent, and, ultimately, are not always successful. In these situations, approaches that support the parent to be the best parent they can be, in the context of their mental health difficulty, will always be needed. Moreover, we know very little about the relative costs of treating purely the parent's depression versus providing additional/alternative support for the parent and/or child, and these will need to be established.

Conducting standalone RCTs that evaluate the impact on children of treating parental depression will be costly and difficult. However, there is a more accessible alternative: inviting adult mental health researchers to include measures of child outcomes in their RCTs would be inexpensive and simple. Although issues of statistical power and of parental objectivity would likely need attention, these are surmountable, and we encourage adult- and child-focused researchers to collaborate in this manner. Key considerations will include (i) whose report of children's mental health should be sought, e.g. parents, children, others (e.g. teachers); and (ii) how to assess this, e.g. clinician interview, self-report, or both (Wolpert *et al.*, 2016). Regarding (i), a pragmatic approach for researchers could be to seek parental report only. This would, of course, be scientifically limiting, not least because depression appears itself to have an influence on parents' judgement of their children's symptoms (e.g. Clarke *et al.*, 2001; Compas *et al.*, 2015). Given that the essential nature of our suggestion is its practical simplicity – that adult mental health researchers seek information from trial participants about their children's mental health – the practical simplicity might outweigh the scientific limitation. Regarding (ii), the Common Measures in Mental Health Science Initiative (Farber *et al.*, 2023) has endorsed the Revised Child Anxiety and Depression Scale (RCADS-25; Chorpita *et al.*, 2005) for children aged at least 8 years, making this arguably the optimal measure to use. For studies examining mental health of children under 8 years, the widely used Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) for children aged at least 2 years could be optimal.

This review had a number of strengths, including tight inclusion criteria focusing on scientifically robust studies, and the use of the well-established and exhaustive METAPSY database, meaning that no eligible studies are likely to have been overlooked. We employed careful and highly reliable methods, meaning that we are unlikely to have failed to identify any appropriate studies. However, it also had a number of weaknesses, which should be taken into account: included studies were restricted to those that employed a psychological treatment modality. It is possible that studies employing a pharmacological treatment approach would have been eligible, although we are currently aware of only one (the STAR-D study; Foster *et al.* (2008)). Second, although the review used the highly robust METAPSY database, this database is, at the time of writing, up to date until January, 2024. It is possible that other relevant literature could have been published in the period since then.

We limited the focus of our review to studies using RCT designs. Hence, we are unable to draw any conclusions about children's outcomes in studies using other designs. Such a review could underpin the foundations laid by our review by identifying both (a) whether children's outcomes

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have been examined using designs less robust than an RCT and, if so, (b) what impact intervention for depression in a parent might have for children's mental health.

We limited the focus of our review to answer the simple question: *What happens to children's mental health when we psychologically treat their parents' depression?* Hence, we excluded studies in which interventions focused on parenting behaviours or parent–child relationships in addition to psychological treatment of parental depression. While this limited focus yielded our 'empty review', and thus the platform for our call to action to adult mental health researchers, it means that we are unable to comment on the value that such adjuncts might add for children's mental health. Letourneau *et al.* (2017) did include such studies, as have more recent trials (e.g. Stein *et al.*, 2018), which, clinically, can evaluate the benefits for children and, scientifically, help elucidate mechanisms operating in the intergenerational transmission of risk of adversity.

In summary, we know very little about the impact on children of treating parental depression beyond the perinatal period. This is a major clinical and theoretical knowledge gap which urgently needs addressing. Addressing this gap need not be costly or difficult, but will require adult mental health researchers, their funders, their sponsors and other stakeholders, to accept a role in answering this important question.

Key practitioner message

(1) Children of parents who have lived experience of an episode of depression, compared with children of parents without depression, are at a substantially greater risk of developing mental health problems. Meta-analytic evidence from RCTs shows that improvements in parent *postnatal* depression following psychological intervention predict positive child psychological outcomes.
(2) There is no systematic review of psychological interventions for adult depression outside the postnatal period that have assessed children's psychological outcomes.
(3) In this pre-registered systematic literature review of RCTs examining the impact on offspring psychological outcomes following psychological interventions for (non-postnatal) depression in adults, we found no studies.
(4) This represents a missed clinical opportunity to evaluate the potential preventive benefits for those children at risk of adverse psychological outcomes, and a missed scientific opportunity to test mechanisms of intergenerational transmission of risk for psychopathology.
(5) Adult-focused mental health researchers can seize the clinical and scientific opportunities by making inexpensive additions of child mental health outcomes measures to their evaluation projects.

Supplementary material. To view supplementary material for this article, please visit https://doi.org/10.1017/S1352465825100970

Data availability statement. The data that support the findings of this study are available from the corresponding author (P.J.L.), upon reasonable request.

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