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One good thing (sometimes) leads to another: Demonstrating mechanistic connections between parent and child outcomes in a community implementation autism trial.

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One good thing (sometimes) leads to another: Demonstrating mechanistic connections between parent and child outcomes in a community implementation autism trial.

This is an important study for several reasons and shows a positive way forward for the design, execution and analysis of intervention trials in the autism field. Brookman-Frazee and colleagues\textsuperscript{1} present novel analysis demonstrating that their community training programme – An Individualized Mental Health Intervention (AIM HI) – that has been shown to effectively improve behaviours that challenge in young children with autism\textsuperscript{2}, also leads to improvements in parental sense of competence (but not caregiver strain). This is in line with a limited number of recent other studies that have addressed the same issue\textsuperscript{3,4}. The present report adds to our knowledge in at least two important ways; both investigating the \textit{mechanisms} of how these outcomes might come about. First, the study demonstrates that implementation of the training during the period of intervention, specifically continuity across treatment sessions and the effectiveness with which a therapist pursued teaching a caregiver skill, mediated improvements in parental sense of competence at the end of treatment. Of note, these process or fidelity implementation ratings were blind coded by naïve raters trained to reliability on video-recorded sessions; an example of the high quality methodology valued by expert trialists. Secondly, the authors not only show that changes in parental sense of competence during the intervention are associated with reductions in child behaviours that challenge at the end of the treatment period; they conduct a formal mediation analysis that further demonstrates that changes in parental sense of competence during the treatment period is related to improvements in child outcomes at 12 and 18 months, long after the intervention period itself. There have long been calls highlighting the value of such mechanistic analysis in order to get ‘maximum value’ from the precious resource of intervention trials\textsuperscript{5} but these have only rarely been taken up in the autism intervention field\textsuperscript{6}.
The authors are to be lauded for many aspects of the design and conduct of the study that overcomes some of the limitations that have rather plagued the autism intervention field, despite a recent uptick in the number and quality of randomised controlled trials being conducted\(^7\). An important difference between the AIM HI trial and most other autism intervention trials is that it is a *community implementation* of a training programme; where the trial therapists train community providers who directly work with parents and children within the school system delivering the behavioural management programme itself. This differs from the majority of studies that are more traditional efficacy trials in which the expert therapy teams work directly with parents or children\(^8\). The autism field has been rather slow to move towards implementation science even though this is – for good reason – an area that has greatly expanded in applied child mental health science in the past decade\(^9\). The reasons for this are multiple and complex but perhaps include a lack of clear consensus around which interventions have a solid evidence base from the efficacy studies that have been conducted. Although the tide has begun to turn within the early intervention field that focuses on interventions targeting the core social communication difficulties that characterise young children with autism, with more recent narrative, systematic and meta-analytic reviews supporting a range of behavioral-developmental interventions\(^8,10\). For interventions that focus on behavioural parenting programmes targeting the common behaviours that challenge seen in many young children with autism the evidence from efficacy trials is perhaps clearer and more robust\(^4,11\).

However, despite all the positives that can be taken from this exemplar study the findings also serve as a salutary warning regarding the limits of effectiveness, and the realistic expectations we should have of such programmes of intervention; notwithstanding the positive outcomes in terms of reductions in child behaviours that challenge and parental self-reported competence (a combination of parental satisfaction and efficacy). The study
found significant intervention effects on caregiver sense of competence but not on caregiver strain and the effect size for competence was modest (Cohen’s $d = 0.23$). One previous report from the RUBI group on their behavioural parent training efficacy study, where expert therapists work directly with parents, found larger positive effects on caregiver sense of competence ($d = 0.34$), and also reductions in parent-reported strain and parental stress\textsuperscript{3}. The current authors correctly describe their study as a ‘conservative test’ of the AIM HI program because of the effectiveness or community implementation nature of the trial; whereby the program experts train community therapists to deliver the programme in usual care settings under what they summarise as ecologically valid conditions. Nonetheless, it is only because of the sizeable sample within this study that the modest effects on parental sense of competence reaches statistical significance. As every trialist knows from their own data; group mean differences, even when significant, hide wide variation in outcomes for individual children and caregivers including in the group with positive intervention outcomes – so some caregivers would not have fared so well.

It is now well established that parenting young children with autism can be highly challenging and that emotional and behavioral problems in the child can significantly impact on parental mental health and wellbeing (and vice-versa)\textsuperscript{12}. This study is one of the first to demonstrate using a mechanistic trial analysis that within this dyadic child – caregiver domain of influence ‘one good thing (sometimes) leads to another’ over time. Importantly, this included effects that continued beyond the intervention period that appear to stem from changes within the caregiver's own psychological wellbeing and psychological resources that may have long-term, knock-on effects in terms of their ability to manage their child's behaviour and support them. The findings from this new study resonate with clinical insights about the importance of providing support to, and being aware of the need to nurture, caregivers of young children with autism themselves; as well as enhancing skills that will
help them to actively manage behaviors that challenge. The hope is that this will, in turn, attenuate the potentially negative impact child behavior that challenges may have on development and learning for their child and, indeed, on their own future psychological wellbeing.

[998 words]

References


