

# Effects of a parenting intervention to address maternal psychological wellbeing and child development and growth in rural Uganda: a community-based, cluster-randomised trial



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## Summary

**Background** Parenting interventions have been implemented to improve the compromised developmental potential among 39% of children younger than 5 years living in low-income and middle-income countries. Maternal wellbeing is important for child development, especially in children younger than 3 years who are vulnerable and dependent on their mothers for nutrition and stimulation. We assessed an integrated, community-based parenting intervention that targeted both child development and maternal wellbeing in rural Uganda.

**Methods** In this community-based, cluster randomised trial, we assessed the effectiveness of a manualised, parenting intervention in Lira, Uganda. We selected and randomly assigned 12 parishes (1:1) to either parenting intervention or control (inclusion on a waitlist with a brief message on nutrition) groups using a computer-generated list of random numbers. Within each parish, we selected two to three eligible communities that had a parish office or a primary school in which a preschool could be established, more than 75 households with children younger than 6 years, and at least 15 socially disadvantaged families (ie, maternal education of primary school level or lower) with at least one child younger than 36 months. Participants within communities were mother–child dyads, where the child was 12–36 months of age at enrolment, and the mother had low maternal education. In the parenting intervention group, participants attended 12 fortnightly peer-led group sessions focusing on child care and maternal wellbeing. The primary outcomes were cognitive and receptive language development, as measured with the Bayley Scales of Infant Development, 3rd edn. Secondary outcomes included self-reported maternal depressive symptoms, using the Center for Epidemiologic Studies Depression Scale, and child growth. Theoretically-relevant parenting practices, including the Home Observation for Measurement of the Environment inventory, and mother-care variables, such as perceived spousal support, were also assessed as potential mediators. Baseline assessments were done in January, 2013, and endline assessments were done in November, 2013, 3 months after completion of the programme. Ethics approval was received from Mbarara and McGill universities. This trial is registered with ClinicalTrials.gov, NCT01906606.

**Findings** Between December, 2012, and January, 2013, 13 communities (194 dyads) were randomly assigned to receive intervention, and 12 communities (154 dyads) were assigned to a waitlist control. 319 dyads completed baseline measures (171 in the intervention group and 148 in the control group), and 291 dyads completed endline measures (160 in the intervention group and 131 in the control group). At endline, children in the intervention group had significantly higher cognitive scores (58·90 vs 55·65, effect size 0·36, 95% CI 0·12–0·59) and receptive language scores (23·86 vs 22·40, 0·27, 0·03–0·50) than did children in the control group. Mothers in the intervention group reported significantly fewer depressive symptoms (15·36 vs 18·61, –0·391, –0·62 to –0·16) than did mothers in the control group. However, no differences were found in child growth between groups.

**Interpretation** The 12 session integrated parenting intervention delivered by non-professional community members improved child development and maternal wellbeing in rural Uganda. Because this intervention was largely managed and implemented by a local organisation, using local community members and minimal resources, such a programme has the potential to be replicated and scaled up in other low-resource, village-based settings.

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## Introduction

In low-income and middle-income countries, 39% of children younger than 5 years have compromised mental development,<sup>1</sup> the most common sources of which are inadequate nutrition and stimulation.<sup>2</sup> Because children

younger than 3 years are especially vulnerable and dependent on their mothers for nutrition and stimulation, researchers now acknowledge that maternal psychological wellbeing is crucial for child development.<sup>3,4</sup> Brief, integrated interventions that address the psychological

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wellbeing of mothers as well as child development and growth might add value to interventions that only address child outcomes.

In low-income and middle-income countries, parenting interventions have combined psychosocial stimulation and nutrition to address co-occurring risk factors.<sup>5</sup> Three delivery models have been used: individual home visits, clinic visits, and community-based group sessions with or without home visits.<sup>6,7</sup> Researchers have identified several successful implementation strategies, including a structured curriculum, demonstrations with materials, the opportunity to practise new skills with relevant feedback, and problem-solving discussions with other parents.<sup>7</sup> The structured curriculum for many of these programmes is informed by theoretical frameworks of responsive parenting that promote child development. Responsive parenting involves the provision of conversation and play materials that are tailored to the child's ability and state of interest. Despite cultural variations, responsive parenting has been shown to enhance cognitive and language development.<sup>8</sup>

Several parenting interventions have assessed the effect of stimulation programmes on maternal mental health.<sup>9–11</sup> Most interventions did not reduce depression or did so under specific conditions. For example, one study reduced maternal depressive symptoms, but only after 25 home visits, which might not be feasible in low-resource settings.<sup>9</sup> Other interventions had effects only when mothers met in groups rather than when they received individual home visits.<sup>10</sup> Another mother-care programme in South Africa that focused on mother-child interactions<sup>11</sup> reduced maternal depression at 6 months, but effects were not sustained at 12 months. Thus, although it is possible that positive interactions with one's child might raise the mother's self-esteem, these interactions by themselves appear insufficient to address broader sources of maternal depression.

Along with stimulation and nutrition, the integration of maternal psychological wellbeing into parenting interventions (ie, integrated intervention) may advance maternal and child health for several reasons. First, despite mixed evidence,<sup>12–14</sup> some investigators have found a link between maternal depression and child cognitive development,<sup>15,16</sup> undernutrition,<sup>17</sup> and illness.<sup>18</sup> Second, whereas the prevalence of maternal depression in low-income and middle-income countries ranges from 18% to 25%,<sup>19</sup> the prevalence of depressive symptoms, which falls within the range of poor psychological wellbeing, could be as much as 55%;<sup>17</sup> thus, child-care problems might extend to a large group of mothers who cannot attend to their child's needs.<sup>9,12</sup> Third, the problem of maternal depression persists beyond the postpartum period, after which symptoms might recur or become chronic<sup>20</sup> and adversely affect the most sensitive years of child development. Fourth, two community-based interventions<sup>21,22</sup> have effectively reduced women's depression, thus minimising the need for professionals and encouraging integration

into early childhood programmes. Fifth, a universal programme that is provided to all mothers irrespective of their depression levels and embedded within parenting sessions would take the potentially stigmatising attention away from mothers' mental health, facilitate social support among women, and help mothers to develop a rewarding relationship with their child, husband, and peers.<sup>14,23</sup> Finally, provision of an integrated programme to both mothers and fathers might engage fathers in the care of both child and mother.<sup>24</sup> Thus, addressing maternal psychological wellbeing explicitly within parenting interventions could benefit not only mothers but also their children, spouses, and extended families.

Uganda is a low-income country where 40% of children are stunted and 14% are underweight.<sup>25</sup> Linear growth and weight are important indicators of nutrition, but, unlike weight, linear growth is more reliably related to mental development.<sup>1</sup> The provision of psychosocial stimulation to children younger than 5 years is also low in Uganda, and one stimulation study<sup>24</sup> found that 75–80% of children between 3 and 6 years old did not have toys or were not engaged in learning activities (eg, counting or naming objects). Consequently, child stimulation interventions have been implemented in Uganda,<sup>23,24,26</sup> affecting psychosocial stimulation,<sup>23,26</sup> child development,<sup>26</sup> and maternal mood, but no other hallmark symptoms of depression, such as anhedonia, irritability, and poor sleep.<sup>23</sup> Maternal psychological wellbeing has been successfully addressed in isolation with parenting programmes in Uganda where 25–39% of women reported moderate to severe depressive symptoms.<sup>27</sup> Risk factors included interpersonal stressors such as disputes, poor social support, and intimate partner violence.<sup>22</sup>

In collaboration with the local non-governmental organisation Plan Uganda, we aimed to assess a community-based parenting programme that explicitly addressed both maternal psychological wellbeing and child development and growth in rural Uganda. On the basis of a literature review of common, but problematic parenting practices in Uganda and other low-resource settings,<sup>6</sup> we addressed specific parenting practices related to psychosocial stimulation, dietary diversity, hygiene, and a mother's relationships with herself, her child, and her spouse. Finally, we examined whether theoretically driven parenting practices mediated the effects of the intervention on child development and maternal wellbeing outcomes. We postulated that the integrated intervention would have beneficial effects on children's development, mother's psychological wellbeing, and parenting practices. On the basis of previous literature,<sup>28</sup> we also postulated that psychosocial stimulation would mediate the effects of the intervention on child development.

## Methods

### Study design and participants

We conducted this community-based, cluster-randomised, effectiveness trial in Lira, a northern district of Uganda,

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