

Evaluating Integration of Early Childhood Development Interventions in the m2m Program in Eswatini

Summary of the Results

Introduction

In 2014–2015 many countries—including Swaziland (now Eswatini)—introduced the World Health Organization’s Option B+ strategy of lifelong antiretroviral therapy (ART) for women diagnosed with HIV to prevent mother-to-child transmission (PMTCT) of the virus during pregnancy and breastfeeding. While PMTCT regimens were known to be highly effective, there was some concern that the growing population of HIV- and ART-exposed but uninfected children could be at risk of poorer outcomes, including developmental ones.

The United States Agency for International Development (USAID), through the United States President’s Emergency Plan for AIDS Relief (PEPFAR), proposed testing whether an early child development (ECD) intervention integrated in antenatal care/PMTCT programs could optimize outcomes in this population. ECD programs designed to promote responsive parenting-and-child early learning opportunities have been shown to have significant effects in improving the cognitive and motor skills of children ages 0–24 months, particularly among those with delayed development and malnutrition in low- and middle-income countries (LMICs).

USAID chose Eswatini as a site to test the effectiveness of such an intervention in the context of a national PMTCT program. It asked mothers2mothers (m2m) to implement the ECD program and the Health Communication Capacity Collaborative (HC3), also funded by USAID, was tasked with conducting an independent evaluation. USAID asked MEASURE Evaluation to edit and format this brief to promote dissemination of the evaluation’s findings, as part of its work developing a USAID-funded regional learning platform for research on orphans and vulnerable children.

Methods

m2m’s strategy for the ECD intervention centered on peer support for pregnant women and parents and caregivers of young children. The intervention drew on m2m’s 15 years of experience in peer support and was partly modeled on two South Africa-based home visiting programs developed by the Early Learning Resource Unit (ELRU) and Philani Mentor Mothers (MM). Home visiting has been shown to be effective in reaching mothers and children in various types of

vulnerable situations around the globe. The program targeted five domains of ECD: cognitive, receptive, and expressive language and gross and fine motor skills. Pregnant women were recruited by facility-based mentor mothers at antenatal care (ANC) and PMTCT clinics that provided ANC and PMTCT services in an integrated manner. The parental training intervention was provided by community-based ECD mentor mothers hired and trained specifically for this intervention. They conducted an intensive program of home visits from pregnancy through the child’s second birthday, with up to 46 home visits. At each visit, ECD mentor mothers helped parents or caregivers learn about ages and stages of growth and about responsive parenting and how to facilitate early learning. During home visits, they made



Evaluation of an 18-month-old child’s visual reception skills.
Photo: Nicole Simmons, Johns Hopkins University Center for Communication Programs

formal and informal assessments of the child and family. Parenting information play groups (PIPs) were also to be conducted monthly in each community.

The evaluation's two primary aims were to assess the impact of the intervention on cognitive, motor, and language outcomes for HIV-exposed infants and on the psychosocial well-being of mothers. Secondly, the program's impact on HIV-related service use and outcomes of participating mothers and children was also assessed, as was the fidelity of intervention implementation.

The study used a quasi-experimental comparison design, with two study arms comprising pre-selected clinic sites. The six intervention arm clinics were implementing Eswatini's Life Long ART for Pregnant and Lactating Women (LLAPLa) program, with support from a PEPFAR partner for HIV care. These already had m2m mentor mothers working in the facility and community to support integrated ANC/PMTCT services, and were newly introducing the m2m ECD program. The nine comparison arm clinics were implementing LLAPLa with support from a PEPFAR partner for HIV care and integrated ANC/PMTCT services. The study enrolled consenting HIV-positive women in the third trimester of pregnancy who were visiting a given clinic for ANC and lived in that clinic's catchment area.

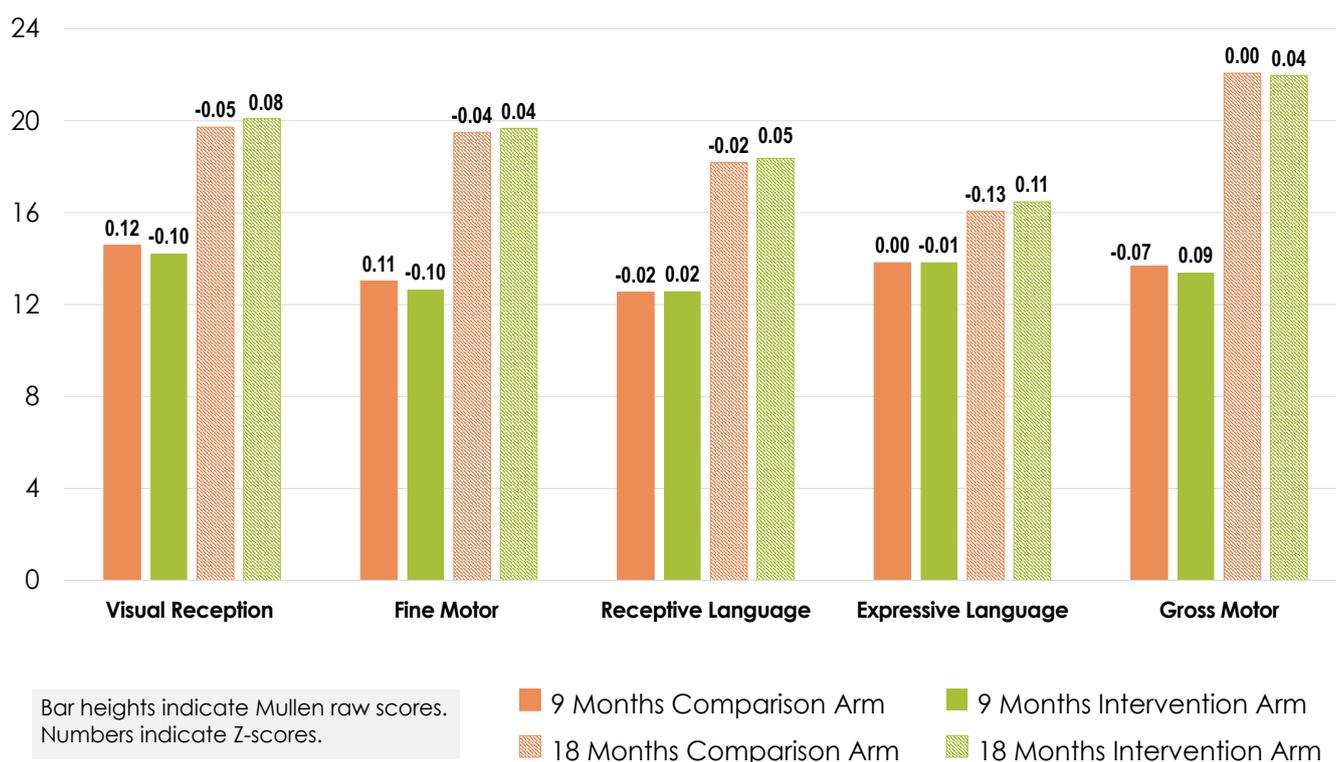
Interviews were conducted (in the local siSwati language) at enrollment, soon after the baby's birth, and at 3, 6, 9, and 18 months of age. A home visit and observation were

conducted between 12–15 months of age. If the mother was not reachable, the baby's primary caregiver was interviewed. At ages 9 months and 18 months, the child came to a central assessment site with the mother and the evaluation team interviewed the mother, using the Edinburgh Postnatal Depression Scale (EPDS) to assess her for symptoms of depression. They also measured the baby and assessed the baby's development, using the Mullen Scales of Early Learning. The Mullen scores were then standardized by subtracting the mean and dividing by the standard deviation within each domain and timepoint, creating what are known as Z-scores. Clinical data were abstracted from patient-held ANC, HIV, and child health cards and from study clinic files and registers obtained from the government's Client Management Information System. Data on the implementation of the intervention were obtained through observation, in-depth interviews of m2m staff, and abstraction of m2m records. The study was conducted from January 2016 through May 2018.

Results

Four hundred and thirty-one women were enrolled in the study: 221 in the intervention arm (I) and 210 in the comparison arm (C). Thirteen enrollees were later excluded from analysis. Four hundred and twenty-five women (I: 218, C: 207) were known to have live births of 429 children (I: 220, C: 209), including four sets of twins. Three hundred and fifty-six mothers (I: 183, C: 173) and 362 children (I: 185, C: 177) were followed at least through 18 months of age. The arms appeared to be well balanced on most sociodemographic

Figure 1. Unadjusted Mullen scores, by domain.



characteristics. The median age in both arms was 28, and 15 percent to 16 percent of the pregnancies were the woman's first. The main areas of dissimilarity appeared to be due to the location (periurban versus rural) of the facilities: 3/9 of the comparison arm sites and 1/6 of the intervention arm sites were located in periurban areas. Hence, participants from the comparison sites were more likely to have electricity and less likely to own farmland. Measured baseline differences between the arms were adjusted for in the primary analysis.

First primary aim: ECD outcomes. Figure 1 shows the children's unadjusted scores on the five domains of child development measured by the Mullen tool. After adjusting for the child's age, gender, stunting, and maternal characteristics at enrollment, the intervention arm had significantly higher expressive language and visual reception scores at 18 months than the comparison arm did. No significant differences were found between arms in these two domains at 9 months of age. No significant differences between arms were found in gross motor, fine motor, visual reception, or receptive language skills at either time point.

In investigating mechanisms associated with the between-arm differences, caregiver-reported performance of six recommended child stimulation practices during the past

three days was significantly higher in the intervention arm. In particular, families in the intervention arm were more likely to have shared books with the child at the 18-month visit (63% versus 41%). Book-sharing was a significant mediating factor between the intervention and changes in both expressive language and visual reception. Study observers witnessed no difference between arms in child care practices during 90-minute daytime visits; both arms performed fairly well.

Second primary aim: maternal psychosocial indicators. The percentage of mothers with depressive symptoms (Score >13 on the Edinburgh Postnatal Depression Scale) declined from 37 percent (I: 31%, C: 44%) at baseline to 13 percent in both arms by 18 months, showing no intervention effect.

Maternal secondary objectives. Maternal retention in HIV care at one year after enrollment was about 12 percentage points higher in Arm I (87% versus 75%). This type of impact has been observed in evaluations of similar m2m programs not incorporating ECD. Rates of viral suppression were about 87 percent among the 57 percent (238/417) of participants with any viral load data; suppression rates did not differ by arm.

Pediatric secondary objectives. Both stunting (35% at 18 months) and infant mortality (48/1,000 live births) were higher than recent estimates for Eswatini. There was no difference between arms in other growth measures. Acute malnutrition was low despite the severe 2016–2017 drought in Eswatini. There were no differences by study arm in rates of HIV testing by six to eight weeks, between 9–10 months, and after 18 months or in cotrimoxazole compliance; universal DNA PCR testing at six weeks was over 90 percent in both arms.

Fidelity of intervention implementation. Home visits were well implemented at the required frequency and with high retention. The median family was enrolled for 20 months. The study team observed 13 home visits by mentor mothers; mentor mothers' knowledge and topics covered in these visits were appropriate; mentor mothers had warm relationships with participants, but their teaching methods would have benefited from less lecture and more directed coaching of mothers. PIPs did not attract consistent monthly attendance from groups of mothers and children.

Conclusion and Recommendations

A comprehensive curriculum-driven ECD intervention, beginning prenatally, was successfully integrated in six PMTCT clinics and delivered with fidelity to HIV-positive mothers and their infants by mentor mothers through home visits. As observed elsewhere, stunting was found to have a



An m2m ECD mentor mother working with a child during a home visit.
Photo: Duncan Kochelani, Health Communication Capacity Collaborative

strong negative effect on child development, and was present at relatively high frequency among our study participants. In two areas (visual reception and expressive language), children in the intervention arm demonstrated slightly more rapid development between nine and 18 months of age than did children in the comparison arm.

Both of these effects were partly mediated by increased sharing of picture books between caregivers and children. Dialogic reading/book sharing involves turn-taking, whereby

parents and children interact and talk about the scenes, actions, and emotions displayed in the pictures. Parents are taught how to engage children in the pictures and stories as active participants (e.g., where is the dog? what is the boy eating? why is the girl smiling?). We recommend building on these achievements, by involving Eswatini communities to support book-sharing, providing coaching to parents about sharing books, and increasing the availability of children's books in the communities through a lending library.

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³ Health Communication Capacity Collaborative. (2018). Evaluating integration of early childhood development interventions into the m2m Program in Eswatini. Baltimore, MD, USA: Johns Hopkins University Center for Communication Programs.

⁴ The Masithethe Series, retrieved from http://www.elru.co.za/family_community_involvement.html; Rotheram-Borus, M. J., et al. (2011). Philani Plus (+): A mentor mother community health worker home visiting program to improve maternal and infants' outcomes, *Prevention Science*, 12:372–388.

⁵ Lozoff, B., et al. (2010). Home intervention improves cognitive and social-emotional scores in iron-deficient anemic infants. *Pediatrics*, 126(4): e884–e894; Potterton, J., et al. (2010). The effect of a basic home stimulation program on the development of young children infected with HIV. *Developmental Medicine & Child Neurology*, 52: 547–551.

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