



# A longitudinal study of the effects of an early life parenting intervention on enrolled children and their siblings in Rwanda

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## Background

Sugira Muryango (“Strong Family”) is a lay-workers-delivered father-engaged home-visiting intervention for families living in severe poverty with infants and children aged 6-36 months in Rwanda. An initial cluster-randomized trial (CRT) found that Sugira Muryango families showed significant improvement in father engagement and responsive and playful interactions, and decreased harsh discipline and intimate partner violence.<sup>1</sup> Moreover, a 12-month post-intervention assessment found that children in Sugira Muryango families improved more on child development outcomes than control children.<sup>2</sup> Importantly, early childhood development interventions have effects not only immediately after implementation but for many years after, as children grow into adults. We are therefore now, four years after the initial CRT started, conducting a new follow-up study to learn how families have sustained and built upon previous impacts of the Sugira Muryango intervention.

The study adds to a significant literature on the sustainment of and potential long-term effects of early parenting interventions. Few, if any, longitudinal studies of parenting-focused early childhood development interventions have been conducted in sub-Saharan Africa. The Sugira Muryango Longitudinal & Spillover Study will fill a gap in understanding of how early intervention can impact key child development and family functioning outcomes in the long term. In addition, by including siblings of enrolled children, we also add to the literature on potential spillover effects of interventions to other, non-targeted members of the family. By utilizing mixed methods we hope to gain a rich understanding of how home-based interventions impact family behavior change in the long term.

1. Betancourt, T. S., Jensen, S. K., Barnhart, D. A., Brennan, R. T., Murray, S. M., Yousafzai, A. K., ... & Kamurase, A. (2020). Promoting parent-child relationships and preventing violence via home-visiting: a pre-post cluster randomised trial among Rwandan families linked to social protection programmes. *BMC public health*, 20(1), 1-11.

2. Jensen, S. K., Placencio-Castro, M., Murray, S. M., Brennan, R. T., Goshev, S., Farrar, J., ... & Betancourt, T. S. (2021). Effect of a home-visiting parenting program to promote early childhood development and prevent violence: a cluster-randomized trial in Rwanda. *BMJ global health*, 6(1), e003508.

## Theory of change

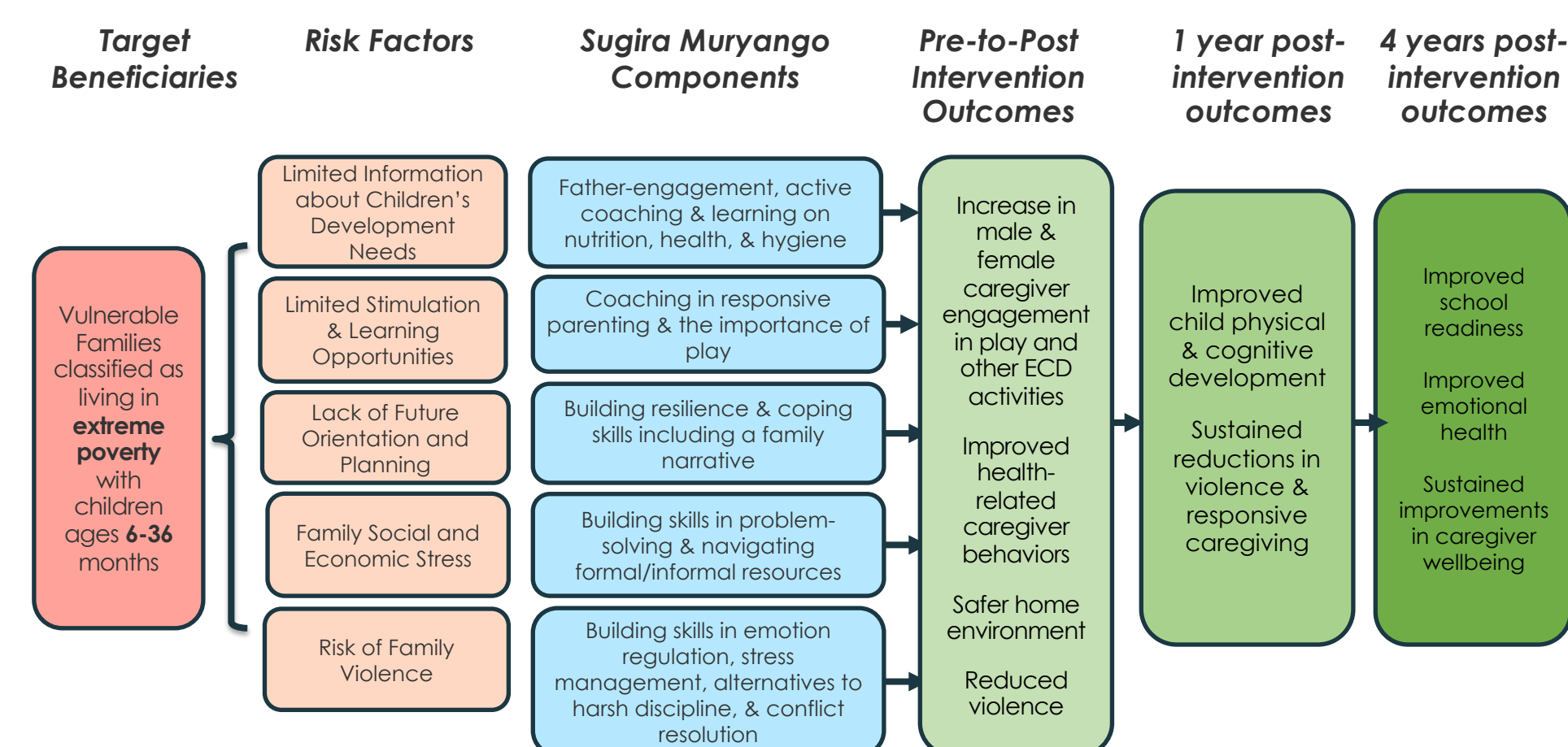


Figure 1: The Sugira Muryango parenting intervention theory of change

## Methods

The study will seek to re-enroll 1029 families (children and caregivers) from the original CRT for Sugira Muryango. We will also sample 250 younger and 250 older siblings to participate in the positive spillover study. We will sample one sibling per household to minimize the nesting of data within households. We will seek to enroll an equal representation of male and female siblings. Data collection will take place during June-July 2022. Main study outcomes by respondents are shown in Table 1.

**Analysis plan:** Subjects in the CRT were randomized into a treatment or control group. For repeated measures, longitudinal mixed-effect models will be used. Intervention effects will be determined by comparing the average change over time (i.e., treatment \* timepoint interaction) in the response variable for the Sugira Muryango group compared to the control. Primary predictors are treatment status, time, and their two-way interaction included as fixed effects. When new assessment instruments are used, statistical methods for test linking will be implemented. To evaluate study spillover on siblings, cross-sectional linear mixed-models will be used, statistically controlling for covariates that are expected to have an influence on the outcome.

## Hypotheses & Implications

### Study Hypotheses:

- 1) Sugira Muryango will have positive effects among eligible caregivers and children compared to controls on a range of outcomes assessed at previous waves of data collection and on new outcomes that have become relevant as the children have aged, including aspects of school readiness.
- 2) Sugira Muryango will have positive effects among younger and older siblings of children who were eligible for and participated in the intervention compared to siblings in control households.

Intervening in early childhood has been demonstrated to be highly cost-effective for improving child development and life outcomes, yet interventions in low-resource settings are limited and not always well-evaluated. Moreover, understanding possible spillover effects on siblings will help us evaluate the true impact of early child development program and their true benefit to society. Results will help to strengthen the Sugira Muryango intervention to seek a great and broader impact on the family in future iterations of the program.

## Respondent

### Caregivers

- Engagement and stimulation of children (Home Observation Measure of the Environment; International Development & Early Learning Assessment)
- Intimate partner violence (DHS IPV survey)

### Previously enrolled children ages 4 – 7 years

- Cognitive and linguistic development (Kaufman Assessment Battery for Children-2 and the Wechsler Preschool & Primary Scale of Intelligence)
- Internalizing and externalizing (Child Behavior Checklist)
- Child discipline exposure (Multiple Indicator Cluster Survey)

### Younger sibling ages 3 months - 4 years

- Child development (Ages & Stages Questionnaire-3 and the Mullen Scales of Early Learning)
- Child discipline exposure (Multiple Indicator Cluster Survey)
- Feeding practices

### Older sibling ages 7 – 12 years

- Cognitive and linguistic development (Kaufman Assessment Battery for Children-2)
- Experience of discipline (Multiple Indicator Cluster Survey and the ISPCAN Child Abuse Screening tool)
- Internalizing and externalizing (Child Behavior Checklist)

## Secondary outcomes

- Household decision-making
- Gender attitudes
- Home sanitation and hygiene
- Depression and anxiety

- Enrollment in early education
- Anthropometrics (stunting and wasting)
- Self-regulation

- Enrollment in early or formal education
- Anthropometrics (stunting and wasting)
- Temperament

- Enrollment in early or formal education
- Early literacy (Early Grade Reading Assessment for Rwanda)
- Depression and conduct problems
- Gender attitudes

Table 1: Key outcomes per respondent

## Sponsors

