Using Observation of Mother Child Interaction (OMCI) tool to assess caregiver – child interactions in Rwanda.

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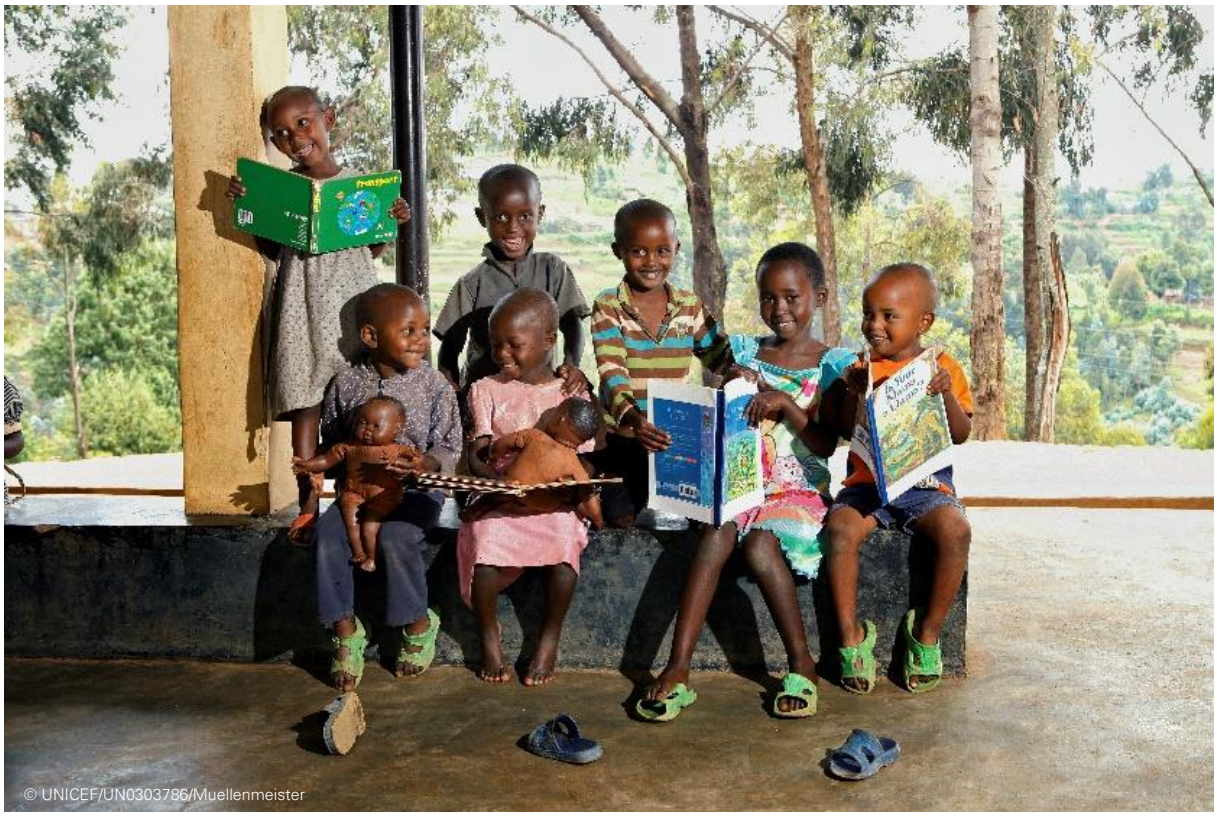


Background

Responsive caregiving, or the ability to notice, understand, and respond to a child's signals in a timely and appropriate manner is linked to improved psychosocial, cognitive, and physical outcomes in children[1,2]. Young children thrive when they develop secure, positive relationships with adults who support their development, growth, and learning. Emphasizing this, responsive caregiving is a key component of the 'Nurturing Care Framework'[3], developed to promote Early Childhood Development (ECD)[4] globally.

While a growing body of literature is exploring the long-term benefits of a nurturing environment for children, much remains unknown about how responsive caregiving affects child development across cultural and socioeconomic contexts.

The majority of studies in this field have used maternal reported measures of caregiving practices; very few studies have made use of observational measures of parent–child interactions. Observational measures are free of self-reporting bias and offer the opportunity to assess responsive caregiving in its 'natural' environment. In this context, Rasheed & Yousafzai (2015) developed the Observation of Mother Child Interaction (OMCI) – a tool to capture reliable and valid measurements of parental sensitivity and responsivity. The OMCI tool, based on the conceptual framework proposed by Landry and colleagues (2006), is used to measure the frequency of four domains of maternal responsive behaviors *(responsivity, emotional support, support for infant attention, language stimulation)* through a structured interaction activity which is scored by a trained observer [5]. The tool yields an overall interaction score, along with separate scores for the parent and child. The total OMCI score is a sum of 19

[1] World Health Organization (WHO). (2019). "Guideline: Improving Early Childhood Development".
[2] Scherer, E., *et al.* (2019). "The relationship between responsive caregiving and child outcomes: evidence from direct observations of mother-child dyads in Pakistan".
[3] Developed by WHO, UNICEF, and the World Bank; the Nurturing Care Framework is designed to help children survive and thrive to transform health and human potential.
[4] Early childhood development refers to the physical, social, emotional, and cognitive abilities a child acquires during his/her childhood, and it generally covers the period 0 – 8 years of age. World Health Organization (WHO). (2019). "Guideline: Improving early childhood development".
[5] Scherer, E., et al. (2019). "The relationship between responsive caregiving and child outcomes: evidence from direct observations of mother-child dyads in Pakistan".

items[6], with higher scores indicating greater frequency of behaviors associated with good quality, more responsive interactions.

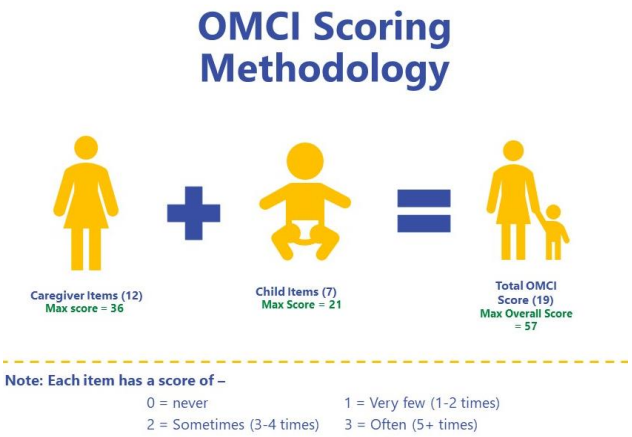
Although recently developed, the OMCI tool has been validated for use in a few low-and middle-income countries (LMIC). For instance, Rasheed & Yousafzai (2015) used the OMCI tool to capture maternal responsive caregiving and children's behaviors during a picture-book-reading activity in rural Pakistan. Scherer and colleagues (2019) used a similar picture-book activity to assess mother-child dyads and investigate whether responsive caregiving is linked to positive child socioemotional development in Pakistan. The OMCI tool was also deployed as part of a pre-post study designed to assess a home-visiting intervention – 'Sugira Muryango', with vulnerable households in Rwanda. The study reported that families in the treatment group improved on core outcomes of parent-child relationships assessed using the OMCI tool – OMCI scores improved for 4.8% of mother-child dyads at post-intervention and 19% at follow-up[7].

Our Study

Athena Infonomics LLC and FATE Consulting Ltd were commissioned to conduct the end-line evaluation of the programme – 'Transforming the lives of children in Rwanda', (ECD&F), Phase II (2017-2020) (referred to as "the/our study" in the rest of the paper). Athena Infonomics led the conceptualization of the study and FATE Consulting was the primary data collection partner.

As part of the end-line evaluation, our study utilized the OMCI tool to measure the responsiveness of interactions between the caregiver and the child. The primary caregivers were provided with a children's book in the local language and asked to play with their child for five minutes. The live interaction was scored by an observer, trained to look for signs of affection, promoting learning and enjoyment, which characterize a positive, responsive interaction.

As mentioned earlier, the total OMCI score is a sum of 19 items – 12 items are observations of the caregiver's behavior, language and affect while 6 are observations of the child's behavior, communication and affect. An additional item measures mutual enjoyment; these seven items form the child's score when summed.[8] The maximum possible score on the OMCI is 57 – a maximum of 36 points on the caregiver items and 21 points for child scores.



Key Results

The study was implemented through a sample of two groups of children (0–23 months old and 24–59 months old) selected in 10 districts[9] (same as the Phase II baseline) with a total of 882 surveys being administered.

The mean overall OMCI score was 34.6, which was 60.7 per cent of the maximum possible score. The mean for caregivers was 21.9, which was 60.8 per cent of the caregiver's maximum possible score while the mean for children was 12.8, which was 60.9 per cent of the child's maximum possible score.

[6] The total OMCI score is a sum of 19 items covering *maternal affect, maternal touch, maternal verbalization, sensitivity and contingent responses, scaffolding, language stimulation, focus, child affect, child focus, child's communication efforts, and mutual enjoyment.*

[7] Betancourt, T.S., et al. (2020). "Promoting parent-child relationships and preventing violence via home-visiting: a pre-post cluster randomized trial among Rwandan families linked to social protection programmes".

[8] UNICEF & Partners in Health. (2020). "Developing Human Capital In Rwanda: Harnessing the Power of Integrated Programming for Nutrition and Early Childhood Development Programme – Baseline Report".

[9] Districts surveyed as part of project – Gakenke, Gasabo, Gicumbi, Ngoma, Nyabihu, Nyamagabe, Nyamsheke, Nyarugenge, Ruhango and Rwamagana.

	Overall			
	Caregiver Score	Child Score	Total Score	% of total score
	Mean [SD]	Mean [SD]	Mean [SD]	Percent
Total	21.9 [5.6]	12.8 [4.7]	34.6 [9.0]	60.7%
Sex of the child				
Male	21.5 [5.8]	12.7 [4.5]	34.1 [9.1]	59.8%
Female	22.2 [5.4]	12.9 [4.9]	35.1 [8.9]	61.6%
Age of the child				
0-11 months	17.8 [6.5]	8 [6.5]	25.8 [11.2]	45.3%
12-23 months	20.2 [6.2]	12.1 [5.1]	32.2 [9.9]	56.5%
24-59 months	22.8 [5.0]	13.4 [4.1]	36.2 [7.8]	63.5%
Wealth quintile				
Poorest (1)	21.2 [5.8]	12.3 [4.8]	33.5 [9.1]	58.8%
2	21.1 [5.8]	11.8 [4.7]	32.8 [9.0]	57.5%
3	22.8 [5.2]	13.1 [4.6]	35.9 [8.7]	63%
4	21.0 [6.4]	12.5 [4.9]	33.5 [10.1]	58.7%
Wealthiest (5)	23.2 [4.4]	14.0 [4.2]	37.1 [7.6]	65.1%
Ubudehe[10] status				
Ubudehe 1	22.3 [5.7]	12.4 [5.1]	34.7 [9.5]	60.9%
Ubudehe 2	21.2 [5.9]	12.1 [5.1]	33.3 [9.6]	58.4%
Ubudehe 3	22.6 [5.2]	13.6 [3.8]	36.2 [7.7]	63.5%
Primary caregiver's highest education level attained				
No education	20.6 [5.7]	10. 7 [4.9]	31.3 [8.8]	54.9%
Primary	21.8 [5.6]	13.1 [4.5]	35.0 [8.8]	61.4%
Secondary and higher	23.0 [5.5]	13.4 [4.8]	36.4 [9.3]	63.9%

These scores were representative of *moderately responsive interactions* and indicated the need for improvement in caregiver practices to increase responsiveness. The overall scores were lower among children aged 0–11 months as compared to children aged 12-23 months and 24-59 months. The interactions were likely to be less responsive among illiterate caregivers (31.3) when compared to caregivers who had either primary (35) or secondary and higher education (36.4). The data showed that the sex of the child did not seem to make much difference in the overall score.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Compared across treatment and control sites at end-line, the data showed that the mean overall OMCI score in ECD&F sites was 34.6, which was 61.6 per cent of the maximum possible score – slightly greater than the control sites where the mean overall OMCI score was 34.0, which was 59.6 per cent of the maximum possible score. In ECD&F sites, among households with older children (24-59 months), the mean overall OMCI score was slightly higher at 37.2, which was 65.3 per cent of the maximum possible score when compared with control sites where the overall OMCI score was 35.2, which was 61.8 per cent of the maximum possible score.

Conclusion

This is one of the few studies utilizing OMCI as a measure to assess the responsiveness of caregiver–child interactions in low-and middle-income countries. The study highlights the need to improve caregiver practices in order to enhance the responsiveness of caregiver–child interactions in Rwanda. Findings suggest that incorporating responsive caregiving into ECD interventions may improve caregiver childcare practices and thereby positively influence child development outcomes. In this context, OMCI may prove to be a useful tool for recognizing critical pathways to change responsive caregiving behaviors and may be utilized by potential interventions that seek to optimize child development through responsive caregiving.

Contributors

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[10] Rwanda uses a community-based poverty ranking system known as Ubudehe to identify the most vulnerable households. Currently the system has four categories, with the poorest households placed in Ubudehe 1 and the wealthiest households placed in Ubudehe 4.