The Omama Project: Supporting the Early Development of Roma Children Living in Poverty

O Shaw, I Heica, O Matoušková, R Babeslova, I Vavreková, M Fernandez, Cesta von, Bratislava, Slovakia; Children University Hospital, Bratislava, Slovakia; MRC Lifecourse Epidemiology Centre and Human Development and Health Academic Unit, Faculty of Medicine, University of Southampton, Southampton, UK; Nuffield Department of Women’s and Reproductive Health, the John Radcliffe Hospital, University of Oxford, Oxford, UK.

High levels of poverty, undernutrition and developmental delay, comparable with those from low- and middle-income countries, have been reported from children in the Roma community – Europe’s largest ethnic minority of 10-12 million. Despite the former being key risk factors for suboptimal early child development (ECD), no data exists on the scale of neurodevelopmental disturbances among impoverished Roma children in Slovakia. Brain stimulation interventions during the first three years of life are evidenced to have pervasive effects on ECD outcomes in such settings. However, because of their reliance on healthcare professionals, these are difficult to scale to population-level. This pilot study examined (1) rates of ECD delay and (2) whether a community- and play-based, brain stimulation intervention (the Omama intervention) had beneficial effects on neurocognitive outcomes in 2-year-old impoverished Roma children from Eastern and Central Slovakia.

Roma children (n=116), aged 24.01 (SD 4.6) months, from 11 settlements participated in the pilot: 87 (75%) and 29 (25%) were randomized to the Roma control (RC) and intervention (I) groups respectively. Caucasian, non-Roma children (n=13) comprised the non-Roma control (NRC) group. RC and NRC represent the study’s negative and positive control groups respectively. Cognitive, language, motor and behavioural outcomes were measured at 2 years on the INTERGROWTH-21st Neurodevelopmental Assessment (INTER-NDA), an international, standardized, validated measure of child development for children aged 22 to 30 months. Its norms are international standards on which severe and mild-to-moderate delay for each ECD domain are defined as ≤3rd and 3-10th centiles.

The intervention, administered between 6 months and 2 years, consisted of increasingly challenging developmental tasks modelled on the Play Wisely® Curriculum, with additional components on responsive parenting and parental engagement. One-hour, home-based, weekly sessions were delivered to mothers and children by trained Roma women. Mothers were taught intervention exercises and encouraged to administer these daily to their child.

Standardized INTER-NDA domain scores, and the rates of mild-to-moderate and severe delay were compared between groups. Cognitive, gross motor, and language scores were significantly lower in RC compared to NRC and I (F=20.47, 7.86, 16.33 and 3.48 respectively; p<0.05). Fine motor scores were similar across groups. Severe delays (figure 1) were observed in RC only across all domains, except negative behavior – this was significant for cognition (17.2%, X² statistic=8.54, p=0.01). Rates of mild-to-moderate delay were lower in I than RC, across all domains except negative behavior -these differences were not statistically significant. The risk of any delay was higher in RCs than I for cognition (OR 0.36-5.30) and positive behavior (OR 1.99, 95%CI 0.62-6.37). Effect sizes were medium (g=0.64-0.77) for improvements in cognitive, gross motor and language outcomes and small (g=0.36-0.46) for positive behavior and fine motor outcomes in I when compared with RCs.

Despite the small sample size, this pilot study provides evidence of (1) high rates of ECD, particularly cognitive, delay and (2) the beneficial effects of the Omama intervention in improving neurocognitive outcomes among impoverished Roma children in Slovakia. Data collection is ongoing.