

S11-1: The Effectiveness of a Whole System Approach to Improve Physical Activity of Children Aged 5 to 11 Years Living in Multi-Ethnic and Socio-Economically Deprived Communities

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Purpose: Whole system approaches to public health challenges such as low physical activity levels have the potential to create sustained behaviour change at a population level and tackle health inequalities. However, there is currently little evidence of the nature or effectiveness of adopting whole system approaches. This study evaluated whether a whole system physical activity intervention (JU:MP) was effective at improving physical activity in five- to eleven-year-olds.

Methods: A before and after controlled study with two-arms (JU:MP intervention and control), was conducted in Bradford, United Kingdom with data collected at baseline and 24-months follow-up. Habitual physical activity was measured via accelerometry. The primary outcome was difference in moderate-to-vigorous intensity physical activity (MVPA) between groups at 24-months. Secondary outcomes included: sedentary time (ST), counts per minute (CPM), BMI z-score, waist circumference, social, emotional, and behavioural health, and quality-of-life. An exploratory analysis compared intervention effects between sub-groups.

Results: 1,453 children were recruited. 330 children with valid wear-time at baseline and 24-months (JU:MP group n = 175, control group n = 155) were included in the final analysis of physical activity outcomes. The JU:MP group improved levels of MVPA (+4.99 minutes/day, confidence interval (CI) = 1.01, 8.96, standardised mean difference (SMD) = 0.29), ST (−8.69 minutes/day, CI = −16.76, −0.61, SMD = −0.20), and CPM (+32.72, CI = 5.93, 59.53, SMD = 0.28) compared to controls. There were minor differences between groups in all secondary outcomes, favouring the JU:MP group. Exploratory sub-group analysis revealed that MVPA improved for boys (+7.34 minutes/day, CI = 0.70, 13.99, SMD = 0.36) and South Asian heritage children (+7.20 minutes/day, CI = 1.67, 12.72, SMD = 0.52) in the JU:MP group compared to the control group.

Conclusions: Whole system approaches hold considerable promise for addressing children's levels of physical activity at scale, whilst also tackling inequalities.

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Keywords: Physical activity, whole system, children, inequalities, before and after trial

