

Childhood overweight and obesity have been described locally as an area of concern (Buttigieg, Townsend Rocchiccioli, & Ellul, 2012; Cuschieri et al., 2016; Mizzi, Aquilina, & Vella, 2012). Early childhood plays an important role in the lifelong development of eating and physical activity (PA) behaviours, which in turn have an important role in the regulation of energy balance and the development of overweight (OW) and obesity. In addition, evidence suggests that the prevalence rates of OW and obesity in children are higher in areas with a poor socio-economic status (SES). The main aim of this study was to explore these behaviours in a sample of Maltese preschool children living in an area with low SES.

Maltese children (aged 3-4 years) and their parents, living in a selected local school district classified as high-risk-of-poverty, were invited to participate in the study following ethical approval. Anthropometric measurements were first taken in the school setting, and the Child Eating Behaviour Questionnaire (CEBQ) and an edited version of the Schools Physical Activity and Nutrition Survey 2015 (SPANS) completed via parental phone interviews during the period January-February 2018. Semi-structured interviews with parents and objective measurements on PA (accelerometers) on a sub-sample of children were then carried out in June-July 2018.

The response rate in the schools was of 63.39%, using WHO criteria it was observed that 40.9% of the children were either OW or obese (28.2% OW, 12.7% obese), this was found to be significantly associated with the education level of the parents (WHO  $p=0.039$ ). When the eating behaviours of the children were assessed in relation to their weight it was found that all eating behaviours were significantly associated to the children's weight, although the strength of the association and significance varied in accordance of the weight criteria used. The food approach behaviour scale (WHO;  $p=0.002$ ), and food avoidance scales (WHO;  $p=0.003$ , IOTF;  $p=0.013$ ) both correlated significantly with the children's weight with the highest scores observed in the OW and obese weight category respectively. Semi-structured interview findings suggest that the children's food avoidance behaviours were limiting their nutritional variety. Interviews identified lack of time as a barrier in supporting good behaviours. 91.9% of children did not comply with the WHO recommendations for daily PA, whilst 71.8% exceeded the 1-hour WHO daily screen time guidelines on weekdays and 47.9% on weekends respectively. Main sedentary behaviours reported were smartphones/tablets use (mean 72 min/day; 64 min/day; weekend, weekdays respectively) with a significant association across all weight standard criteria ( $p=0.013$ , 0.016 and 0.015 for WHO, CDC and IOTF respectively).

Overall it was found that eating, particularly food approach and food avoidance, as well as PA behaviours were linked to the children's weight status, suggesting further local research in the field is required. Strategies aimed at improving children's behaviours, especially in a context of low SES, with regard parent education and support all merit further public health attention. In addition, collaboration with local and central government in addressing aspects of the local obesogenic environment specific to a particular community's needs is also recommended.

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