

## Examining the Independent Effects of Early Exposure to Game Consoles and Parent-Child Activities on Psychosocial Development

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**Abstract :** As technology advances, exposures in early childhood are no longer confined to stimulations in the surrounding physical environments. Children nowadays are also subject to influences from the digital world. In particular, early access to game consoles can cause risks to child development, especially when the game is not developmentally appropriate for young children. Overstimulation is possible and could impair brain development. On the other hand, recreational parent-child activities, including outdoor activities and visits to museums, require child interaction with parents, which is beneficial for developing adaptive emotion regulation and social skills. Given the differences between these two types of exposures, this study investigated and compared the independent effects of early exposure to a game console and early play-based parent-child activities on children's long-term psychosocial outcomes. This study used data from a subset of children (n=304, 142 male and 162 female) in the longitudinal cohort study, which studied the long-term impact of family socioeconomic status on child development. In 2012/13, we recruited a group of children at Kindergarten 3 (K3) randomly from Hong Kong local kindergartens and collected data regarding their duration of exposure to game console and recreational parent-child activities at that time. In 2018/19, we re-surveyed the parents of these children who were matriculated as Form 1 (F1) students (ages ranging from 11 to 13 years) in secondary schools and asked the parents to rate their children's psychosocial problems in F1. Linear regressions were conducted to examine the associations between early exposures and adolescent psychosocial problems with and without adjustment for child gender and K3 family socioeconomic status. On average, K3 children spent about 42 minutes on a game console every day and had 2-3 recreational activities with their parents every week. Univariate analyses showed that more time spent on game consoles at K3 was associated with more psychosocial difficulties in F1 particularly more externalizing problems. The effect of early exposure to game console on externalizing behavior remained significant ( $B=0.59$ , 95%CI: 0.15 to 1.03,  $p=0.009$ ) after adjusting for recreational parent-child activities and child gender. For recreational parent-child activities at K3, its effect on overall psychosocial difficulties became insignificant after adjusting for early exposure to game consoles and child gender. However, it was found to have significant protective effect on externalizing problems ( $B=-0.65$ , 95%CI: -1.23 to -0.07,  $p=0.028$ ) even after adjusting for the confounders. Early exposure to game consoles has negative impact on children's psychosocial health, whereas play-based parent-child activities can foster positive psychosocial outcomes. More efforts should be directed to propagate the risks and benefits of these activities and urge the parents and caregivers to replace child-alone screen time with parent-child play time in daily routine.

**Keywords :** early childhood, electronic device, parenting, psychosocial wellbeing

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