

## Association between digital device usage and cognitive development among primary school children in grades 3 and 4 in Sri Jayewardenepura educational zone

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Cognition involves the mental processes of acquiring knowledge and understanding through thought, experience, and the senses. It includes attention, memory, reasoning, and visual-auditory processing, which are essential for a child's overall development. The use of digital devices among children has risen considerably, especially after their incorporation into education during the COVID-19 pandemic. Therefore, we aim to investigate the connection between digital device use and cognitive development among grades 3 and 4 students in the Sri Jayewardenepura Educational Zone. A cross-sectional descriptive study was conducted in schools selected via cluster sampling. Data on socio-demographics and digital device use were gathered through a self-administered questionnaire. Cognitive development was evaluated using a custom-designed tool. Following Indian Paediatrics guidelines, participants were grouped based on whether they used devices for less than or more than 2 hours daily. Data analysis involved descriptive statistics and chi-squared tests conducted with SPSS. A total of 197 students in grades 3 and 4 participated in the study. Mean digital device usage was 1.18 hours (SD = 0.67) on weekdays and 1.46 hours (SD = 0.95) on weekends. The mean cognitive score was 55.80 (SD = 10.52). No significant association was found between device usage and cognitive scores on weekdays ( $\chi^2 = 0.293$ ,  $p = 0.58$ ) or weekends ( $\chi^2 = 0.543$ ,  $p = 0.46$ ). However, significant associations were observed between weekday usage and primary caretaker ( $\chi^2 = 4.688$ ,  $p = 0.030$ ), between weekend usage and playtime without devices ( $\chi^2 = 11.875$ ,  $p = 0.001$ ), and between household income and weekend usage ( $\chi^2 = 5.478$ ,  $p = 0.019$ ). The average device usage among participants stayed within the recommended limit of less than two hours per day. Usage was higher on weekends than during weekdays. Awareness programmes are recommended to educate the public about safe digital device use and its potential impact on children's health.

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