

Factors predicting screen time related to physical and behavioural complaints in primary school children

Ting Siew Leng, FRCOphth¹, Rosalia Saimon, PhD², MD Mizanur Rahman, PhD², Rasitasam @ Razitasham bt Safii, MPH², Ho Siat Lian, Dip (Nursing)¹, Nancy John, Dip (Nursing)¹, Lim Lik Thai, FRCOphth¹, Nazirin Arsad, MHSc³

¹Department of Ophthalmology, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, Kota Samarahan, Sarawak, Malaysia, ²Department of Community Medicine and Public Health, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, Kota Samarahan, Sarawak, Malaysia, ³Department of Ophthalmology, Sarawak General Hospital, Kuching, Sarawak, Malaysia

ABSTRACT

Background and objective: Physical and behavioural problems from extended usage of electronic devices are issues among primary school children. This study is aimed to investigate the prevalence of physical and behavioural complaints arising from the electronic device usage and to identify the potential factors that predicted the complaints.

Methods: This was a primary school-based cross-sectional study using multistage cluster sampling, conducted at Bau district in Sarawak, Malaysia in 40 primary schools. A questionnaire was used to collect information of usage pattern in insufficient lighting, timing and position. The physical and behavioural complaints were traced. Data analysis was performed using SPSS version 22. A p-value < 0.05 with 95% CI was considered as statistically significant.

Results: About 52.8% of the 569 students used digital devices in a bright room, 69.8% in the day time and 54.4% in sitting position. The physical complaints were headache (32.9%), neck, shoulder and back pain (32.9%) followed by eye strain (31.8%). Regarding behavioural problems, 25.7% of the students had loss of interest in study and outdoor activities (20.7%), skipped meals (19.0%) and arguments/disagreements with parents (17.9%). After logistic regression analysis, the lying position (OR=1.71, 95% CI: 1.096, 2.688) and darkroom lighting (OR=2.323 95% CI: 1.138, 4.744) appeared to be potential predictors of the complaint.

Conclusion: One-quarter of the students studied experienced physical complaints, and one-fifth had behavioural problems associated with the use of electronic devices. Lying position and darkroom lighting are the potential predictors of complaints. Therefore, we suggest that the children should use electronic devices in the sitting position with adequate room lighting.

KEYWORDS:

Electronic devices, Complaint, screen time, logistic regression analysis

INTRODUCTION

It is increasingly common for present day children have grown up with electronic devices and this has become the

norm in many of the more affluent societies. Some caregivers may even use such electronic technology as an “*electronic pacifier*” to calm and entertain their kids. Eighty per cent of parents admitted that their children under the age of two were exposed to electronic media¹ and the majority of parents are widely unconcerned about the media usage of their young children.² Digital technology always raises concerns about a potential negative impact on the physical, cognitive, emotion and social well-being of the children.^{3,6} There is evidence that excessive screen time is associated with a variety of health harms among children, with evidence strongest for an unhealthy diet, adiposity, depressive symptoms and quality of life.⁷ Digital eye strain and behavioural stress from extended usage of electronic devices are some of the major issues that is raised among school children.

In this study, we aimed to estimate the prevalence of physical complaints and behavioural problems arising from the electronic device usage among primary school children and to identify the potential factors that predicted the physical-behavioural complaints due to usage of electronic devices.

MATERIALS AND METHODS

Setting and sample size

This was a school-based cross-sectional study conducted at Bau district in Sarawak, Malaysia. All the students of Bau district primary schools and school going children up to the age of 15 years old were eligible to be included in the study population. The study was conducted from May to November 2018. To determine the sample size, we used a single proportion sample size calculation with finite population correction and a 20% prevalence of refractive error.^{8,9} We used 0.05 as an acceptable margin of error and a standard normal variate of 1.96. So, the initial sample size was 388. As we followed multistage cluster sampling, the sample size was multiplied by the design effect of 2.0 and then further inflated, incorporating 20% of the non-response rate. The final sample size was 930.

Sampling procedure

We followed a multistage sampling technique to select the study participant. In the first stage, 40 government-funded primary schools were selected randomly from Bau district

This article was accepted: 23 August 2020

Corresponding Author: Dr Ting Siew Leng

Email: slting@unimas.my