Electronic Media Use and Academic Performance in Early Adolescence: A Longitudinal Study

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Introduction

CATS

The Childhood to Adolescence Transition Study

- There is growing concern that rising rates of electronic media use in children and adolescents may be harmful.1
- But the extent to which different types of electronic media use may be associated with academic performance is unclear.

Aim

- Examine the effect of electronic media use on academic performance, during early adolescence in a large community sample.

Methods

- A prospective, longitudinal study following 1239 students annually from 8-9 years of age, across Melbourne, Australia.
- Academic performance was measured on a national achievement test (NAPLAN) at wave 3 (10-11 yrs).2
- Parents reported on their child’s duration of electronic media use per week, at each wave, and an average value across the 3 waves was used in analyses:
  - Video games
  - General computer use
  - Television
- Linear regression analyses were conducted separately for males and females on complete cases, adjusting for age, SES and BMI and taking account of potential correlation of responses within schools.

Results

Sample demographics

<table>
<thead>
<tr>
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<th>Males (n = 347)</th>
<th>Females (n = 406)</th>
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<tbody>
<tr>
<td>Age at wave 3 (years)</td>
<td>10.9 ± 0.4</td>
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<td>Born in Australia (n / %)</td>
<td>313 / 90</td>
<td>364 / 89</td>
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<td>SES (IRSAD, SEIFA*)</td>
<td>1027 / 60</td>
<td>1023 / 63</td>
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<tr>
<td>Maternal age at birth (years)</td>
<td>31.9 ± 4.7</td>
<td>32.1 ± 4.7</td>
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<td>NAPLAN: Reading score at wave 3</td>
<td>530.6 ± 75.7</td>
<td>532.9 ± 75.5</td>
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<tr>
<td>NAPLAN: Numeracy score at wave 3</td>
<td>526.9 ± 66.7</td>
<td>500.8 ± 63.8</td>
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</table>

* Index of Relative Socio-Economic Advantage and Disadvantage, Socio-Economic Indexes for Areas (based on residential postcode).

Figure 1: Average hours per week (95% CI) of media use across waves 1, 2 and 3 ((a) males and (b) females)

Figure 2: Average change in NAPLAN reading and numeracy score for each additional 1 hour of television viewing per week.

Figure 3: Average change in NAPLAN reading and numeracy score for each additional 1 hour of computer use per week.

Figure 4: Average change in NAPLAN reading and numeracy score for each additional 1 hour of playing videogames per week.

Discussion

- Each additional hour of weekly television viewing was associated with a decrease in performance in reading for females and males, and in numeracy for females.
- Each additional hour of weekly computer use was associated with a decrease in numeracy for males. There was no association for females.
- Playing video games did not have an effect on academic performance.
- The pattern of results remained the same when controlling for emotional and behavioral problems (parent report on SDQ).

Conclusions

- Watching television is predictive of poorer academic performance during early adolescence.
- Given rates of electronic media use are increasing in children and adolescents6 and the important role education has in laying a foundation for future health and wellbeing, these results may have important implications for improving long-term outcomes.
- Our results suggest future interventions may be more effective if they are targeted at specific types of electronic media use rather than overall screen time.

Acknowledgments

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References


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