

# Excessive daytime sleepiness and screen exposure assessed by pre-schoolers and their parents

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## INTRODUCTION

The aim was to compare levels of excessive daytime sleepiness (EDS) assessed by pre-schoolers and their parents, and to investigate the role of screen exposure and sleep habits in daytime sleepiness.

## METHODS

A total of 108 boys and 88 girls, average age 6(6-7) years, attending pre-school education, have been included. For each child, one of the parents was included as well. The following questionnaires were collected: Epworth Sleepiness Scale for Children and Adolescents (ESS-CHAD), ESS-CHAD reported by parents, and sleep habits and media usage questionnaire constructed for the purpose of the study.

## RESULTS

EDS was similar on the ESS-CHAD assessed by parents and their children (3(2-5) vs. 4(2-6);  $p=0.490$ ). Children reported more daytime sleepiness when assessing sleepiness while sitting inactive in a public place ( $p<0.001$ ). On the previous item, 87% of parents reported no sleepiness in a child at all, whereas only 73.6% of children reported such absence of sleepiness. Parents less frequently recognized sleepiness in their children when lying down to rest in the afternoon (1(0-1) vs. 2(0-2);  $p<0.001$ ).

Table 1. ESS-CHAD assessed by parents and their children

	PARENTS	CHILDREN	P
ESS total	3(2-5)	4(2-6)	0.490
Sitting and reading?	1(0-1)	1(0-1)	0.254
Watching TV or a video?	1(0-1)	1(0-1)	0.383
Sitting in a classroom in a school in the morning?	0(0-0)	0(0-0)	0.001*
Passenger sitting in a bus or a car for half an hour?	2(0-2)	2(0-2)	0.465
Lying down to rest or take a nap in the afternoon?	1(0-1)	2(0-2)	< .001*
Sitting and talking to someone?	0(0-0)	0(0-0)	0.877
Sitting quietly alone after lunch?	1(0-1)	1(0-1)	0.186
Sitting and eating a meal?	0(0-0)	0(0-0)	0.305

\* $P<0.05$  following Wilcoxon Signed Rank test for paired samples

Table 2. Sleepiness and sleep habits in children with or without TV in the bedroom

	TV IN THE BEDROOM		P
	Yes	No	
CESS total	4(3-7.25)	3(2-5)	0.049*
TST	10(8.5-10)	10(9-10)	0.317
Weekday bedtime	21(21-21.813)	21(21-21.5)	0.646
Weekday waketime	7.5(7-8)	7.5(7-8)	0.411
Weekend bedtime	22(21-22)	21.625(21.438-22)	0.800
Weekend waketime	8(8-9)	8(7.5-8.938)	0.235

\* $P<0.05$  following non-parametric Mann-Whitney comparison of independent groups

Daytime sleepiness was similarly assessed by children regardless of their ownership of cell phone or tablet ( $p=0.757$ ) and digital games ( $p=0.618$ ) in the bedroom. Yet, children with a TV in their bedroom reported higher sleepiness in comparison to children with no TV (4(3-7.25) vs. 3(2-5);  $p=0.049$ ). Children owning cell phone, digital games or TV had similar total sleep time to children with no cell phone (9.5(9-10) vs. 10(9-10);  $p=0.304$ ), digital games (3(2-6) vs. 3.5(2-5);  $p=0.445$ ) or TV in the bedroom (10(8.5-10) vs. 10(9-10);  $p=0.317$ ). Children reporting to play digital games before bedtime had later weekend bedtime in comparison to others (22(21.5-22.5) vs. 21.5(21-22);  $p=0.024$ ), even though their total sleep time assessment did not differ (10(9-10) vs. 10(9-10);  $p=0.9$ ).

## CONCLUSION

The overall level of EDS was not high in both the children's and parental assessments. Children did not differ in EDS, regardless of having or not having cell phone, tablet or digital games in the room. Still, children with a TV in the room more frequently reported daytime sleepiness, and children playing digital games before bedtime reported later weekend bedtimes.

## REFERENCES

Hale L, Guan S. Screen time and sleep among school-aged children and adolescents: a systematic literature review. *Sleep Med Rev* 2015;21:50–8. doi: 10.1016/j.smrv.2014.07.007

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