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## Introduction

The use of modern information technology (IT) can affect children's physical and mental health [1-5].

The aim of the present study was to find out how long young children use different IT devices (screens) and whether the IT usage is associated with sleep habits, routines, sleep duration and sleep problems.

## Materials and methods

We analyzed data of 962 children, whose age was between 18-71 months (M = 42.57, SD = 15.23).

Parents of toddlers and preschool children from different regions of Lithuania were asked to fill in questionnaires about their children's mental and physical health and the use of information technologies, screen time on workdays and weekends.

The study was carried out in April-December 2017.

The survey questionnaire contained the questions about the child's development and the social environment, the usage of IT devices. Children's sleep problems were assessed using the Child's Behavior Checklist (CBCL /1½-5).

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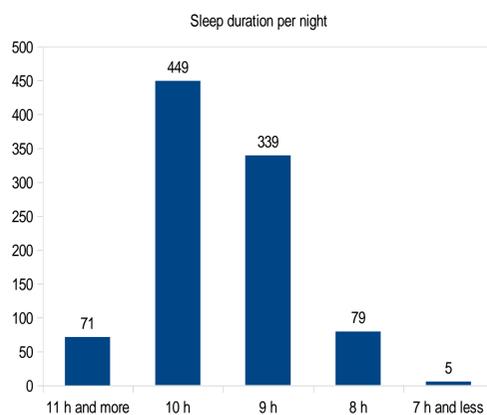


Figure 1. Young children's sleep duration per night.

## Results

The results of the study revealed that most children's sleep duration is 9-10 hours per night (Figure 1). 96.2% of children, who slept 8 hours, and all children, who slept 7 hours during night, slept also during the day time. 75.8% of children at this age slept during the day.

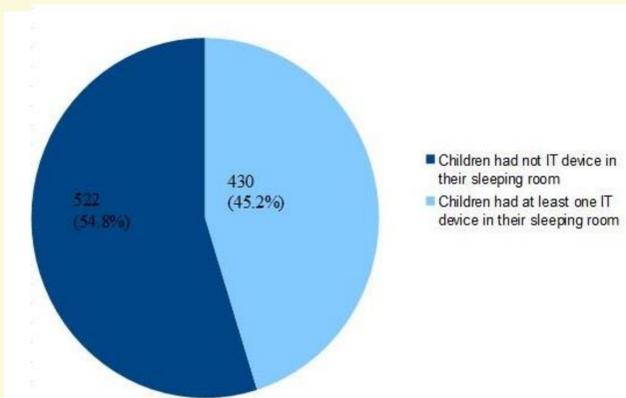


Figure 2. IT devices in children sleeping room.

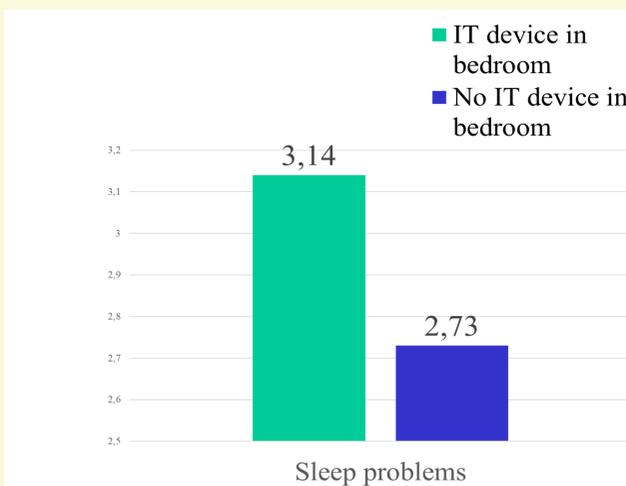


Figure 3. The comparison of children's sleep problems mean score according to whether there are IT devices in children's sleeping room. The difference is significant,  $t = 2.819$ ,  $p < 0.01$

## Results

About half of the children had at least one IT device in their sleeping room (Figure 2). The latter children have more sleep problems (Figure 3) and their sleep duration is shorter (Table 1).

Children who slept shorter than 8 hours at night used IT longer, especially during the weekends ( $p < 0.001$ ).

Children of parents with lower education are more likely to have an IT device in the sleeping room ( $r = 0.22$ ,  $p = 0.00$ ), and they are permitted to watch movies before bed time ( $r = 0.13$ ,  $p = 0.00$ ).

Younger children have the habits and routine before sleep time ( $r = 0.1$ ,  $p = 0.02$ ), but they also have more awakenings during the night time ( $r = -0.192$ ,  $p = 0.00$ ).

Children, who do not have a steady sleep regime, also possess an IT device in their sleeping room significantly more often ( $\chi^2 = 8.711$ ,  $p = 0.013$ ) (Table 2).

## Results

Screen time and sleep duration are related to children's age. Nevertheless, longer screen time (especially watching TV) is related to shorter sleep duration even after controlling child's age ( $p < 0.01$ ).

Table 1. Children's screen time according to sleep duration.

	Child's sleep duration less than 8 hours	Child's sleep duration 8 hours and more	Student t, p
Screen time (overall) weekdays	3.52 (SD 1.23)	3.27 (SD 1.25)	1.789; 0.077
Screen time (overall) weekends and holidays	4.64 (SD 1.45)	4.00 (SD 1.43)	3.849 0.000

Table 2. Children's sleep regimen and IT device in sleeping room.

	There is no IT device in the child's room	In the child's room there are IT devices	Total
Child has steady sleep regime	354 (67.9%)	269 (62.7%)	623 (65.6%)
Child's sleep regime is somewhat different on weekdays and weekends	162 (31.1%)	145 (33.8%)	307 (32.2%)
Child does not have a steady sleep regime	5 (1.0%)	15 (3.5%)	20 (2.1%)

## Conclusions

This study supports the recent findings like in other countries, that the use of IT in the early childhood before going to sleep and having devices in bedroom are associated with sleep problems, especially with difficulties initiating sleep and shorter sleep duration.

## References

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