















# Pain and Sleep Disorders in Children With Cancer

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# Background and aims

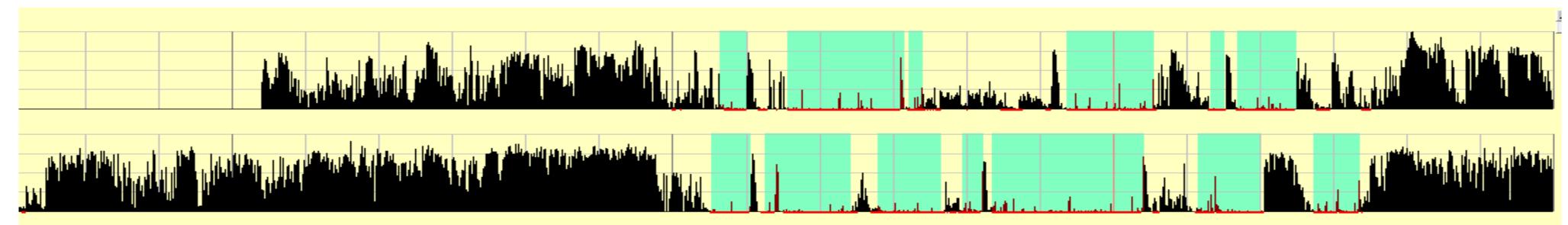
It is estimated that every year 17,5 per 100.00 children below the age of 19 will be diagnosed with cancer. Unlike adults, the five-year relative survival rate of childhood cancer is now above 80% (Howlader et al., 2013).

Survival, however, is not the only concern as these individuals are at risk of long term consequences and more likely to develop serious diseases in adulthood (Nathan et al., 2008). Among sources of stress, physical effects of treatment, namely pain and sleep disturbances play a significant role (Jacob, Hesselgrave, Sambuco, & Hockenberry, 2007) and may impair quality of life.

Children with cancer experience pain and sleep problems; however, there is insufficient data on their prevalence and correlation. The purpose of this study was to assess the prevalence of pain and sleep quality, as well as their association, in children with cancer admitted to pediatric oncology units.

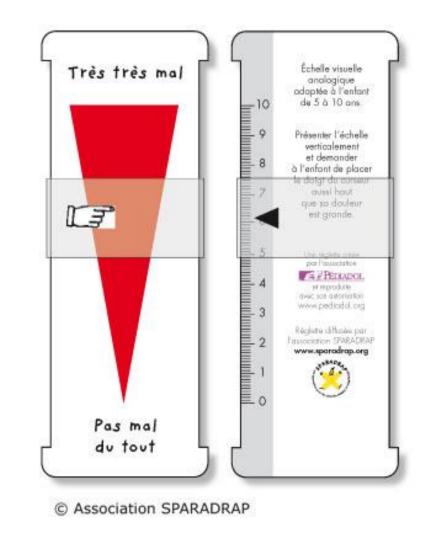
## Methods

It's a study descriptive prospective conducted in two pediatric oncology units. The sample included 75 children aged between 8 and 18 years, diagnosed with cancer, and with hospital length of stay between 2 and 4 days. Pain was assessed on a daily basis using a visual analog scale, and its mean scores were calculated throughout the hospital stay. Sleep quality was assessed based on sleep percentage and efficiency, which were measured through actigraphy (MicroMini-Motionlogger® actigraph, Ambulatory Monitoring Inc.). The differences in sleep quality between children with and without pain were assessed using the T-test and the Mann-Whitney U-test.



Sleep record





Visual Analogue Scale

#### Results

Table 1- Demographic and clinical characteristics

15 (4)
54 (72)
45(60)
4,1 (10,4)
38(50.7)
14 (18.7)
12 (16.0)
11 (14.6)
52 (69.3)
17 (22.0)
13 (17.3)
6 (8.0)
14 (18.7)
39.1 (30.0 - 62.4)
74.9 ±14.0

**Table** 2 - Differences in sleep quality among children with and without pain

Sleep quality	Child	ren	
	without pain	With pain	p
Sleep, med (min-max)	37,3 (24,0 – 89,5)	40,3 (20,8 – 91,2)	NS*
Sleep efficiency, mean ± sd	75,5 ±14,8	74,6 ±13,8	NS <sup>+</sup>

<sup>\*</sup> Teste Mann-whitney U = 619,0, p = 0,890; + Teste  $T_{(73)} = 0,249$ , p = 0,391

## Conclusions

The authors conclude that contrary to expectations, although pain and sleep problems are common in children with cancer, this study found no correlation between these problems, which require simultaneous, independent and specific care. However, further studies should be conducted to explore this association.

## References

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