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Title:
Pain and Sleep Disorders in Children With Cancer

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References:
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Kazak, A. E., Alderfer, M., Rourke, M. T., Simms, S., Streisand, R., & Grossman, J. R. (2004). Posttraumatic Stress Disorder (PTSD) and Posttraumatic Stress Symptoms (PTSS) in families of adolescent childhood cancer survivors. *Journal of Pediatric Psychology*, *29*, 211–219. doi:10.1093/jpepsy/jsh022

Nathan, P. C., Greenberg, M. L., Ness, K. K., Hudson, M. M., Mertens, A. C., Mahoney, M. C., … Oeffinger, K. C. (2008). Medical care in long-term survivors of childhood cancer: a report from the childhood cancer survivor study. *Journal of Clinical Oncology : Official Journal of the American Society of Clinical Oncology*, *26*, 4401–4409. doi:10.1200/JCO.2008.16.9607

Abstract Summary:
Pediatric nursing teacher with 27 years of experience and Principal Investigator in the Health Sciences Research Unit: Nursing, where he is coordinator projects in the area of pain. It was a PhD in Human Biology.

Content Outline:
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). In Europe, in spite of disparities between countries and regions, the survival rate for all cancers combined in children 0-14 years old is 79,1%. It is estimated that in the central and north region of Portugal there are 165 new cases of cancer in children and the results of the EUROCARE-5 study in children diagnosed between 1999 and 2007 show a survival rate of 78% in this country (Gatta et al., 2014).
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). Post-traumatic stress disorder has been reported in survivors of childhood cancer, related not only to the impact of the diagnosis but also to the exposure to distressing events throughout the course of treatment (Kazak et al., 2004). 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.
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.
75 children were enrolled for a total of 272 days. Most children 54 (72%) completed all four assessments, 14 (18,7%) completed 3 assessments, and 7 (9,3%) completed 2 assessments only. The children had an average age of 15 years, with 54 (72%) male participants. The main diagnoses were liquid tumors (leukemia and lymphomas): 45 (60%). There was a total of 133 (48,9%) days when pain was reported. 50 (66,7%) children reported pain at least once during the study, 17 (22,7%) children had pain all four days, 13 (17,3%) reported pain on three days, 6 (8,0%) on two days and 14 (18,7%) children reported pain only once. The duration of the recordings had a mean of 1105,1±440,3 minutes and a median of 1228 (IQR=361,8) minutes per day. During the total period of time recorded, children slept 33,3±16,4% of the time and mean sleep efficiency was 69,3±21,2%. The prevalence of pain during hospital stay was 52 (69.3%),

the median sleep percentage was 39.1% (30.0 – 62.4), and the mean sleep efficiency was 74.9% ±14.0. Sleep quality was similar between children with and without pain (P> 0.05).
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.