

PAIN, DISEASE, AND PSYCHOLOGICAL WELLBEING AS PREDICTORS OF POOR SLEEP QUALITY IN CHILDREN WITH JUVENILE IDIOPATHIC ARTHRITIS

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Background and aim

Poor sleep quality is common in children with juvenile idiopathic arthritis (JIA). Sleep quality is affected by the child's activity in disease and experience of pain. However, psychological variables seems to have an impact on the sleep quality, as well.

The aim of this study was to examine how pain, disease activity, and psychological wellbeing differs in children with JIA with poor or normal sleep quality, and the likelihood of these variables on having poor sleep quality.

Methods

- Participants were children diagnosed with JIA (n=61, aged 6-16, 76% girls).
- Children and a parent completed questionnaires at a routine visit at the Department of Pediatrics, Aarhus University Hospital, Denmark
- A pediatric rheumatologist registered the disease activity during the visit.
- Children with poor sleep quality was defined as having a CSHQ score above 41

MEASURES

Measure	Questionnaire	Range and Interpretation	Rating Source
Sleep quality	Children's Sleep Habits Questionnaire (CSHQ)	Range 33-99. Higher score indicates poorer sleep quality	Parent-rated
Anxiety symptoms	Spence Children's Anxiety Scale (SCAS)	Range 0-114. Higher scores indicates more anxiety symptoms	Self-report
Wellbeing	WHO-5 Wellbeing index	Range 0-100. Higher scores indicates better wellbeing	Self-report
Positive mood	Positive and Negative Affect Schedule (PANAS)	Range 12-60. Higher scores indicates more positive mood.	Self-report
Negative mood	Positive and Negative Affect Schedule (PANAS)	Range 15-75. Higher scores indicates more negative mood.	Self-report
Pain intensity	Visual Analogue Scale (0-10)	Range 0-10. Higher score indicates more current pain	Self-report
Disease activity	Juvenile Arthritis Disease Activity Score (JADAS-27)	Range 0-57. Higher scores indicates more disease activity	Rheumatologist

Results

	Children with poor sleep quality n= 34	Children with normal sleep quality n=27	Differences
Age (years): mean (S.D.)	12.7 (3.16)	12.4 (3.1)	$p=.703$ $d= 0.10$
Gender, males, n (%)	9 (33%)	6 (18%)	$p=.158$ $r=0.18$
Sleep quality: mean (S.D.)	47.7 (5.5)	36.6 (2.5)	$p<.001$ $d=2.59$
Anxiety symptoms: mean (S.D.)	22.3 (10.4)	13.2 (8.6)	$p=.002$ $d=0.95$
Wellbeing: mean (S.D.)	68.0 (15.6)	80.0 (10.1)	$p=.001$ $d=0.91$
Positive mood: mean (S.D.)	39.6 (7.0)	40.8 (7.3)	$p=.517$ $d=0.17$
Negative mood: mean (S.D.)	26.7 (10.3)	21.1 (7.7)	$p=.020$ $d=0.62$
Pain intensity: mean (S.D.)	3.5 (2.6)	1.9 (2.4)	$p=.017$ $d=0.64$
Disease activity: mean (S.D.)	5.3 (4.8)	2.3 (3.1)	$p=.004$ $d=0.74$

Results indicated that 56% of the children reported poor sleep quality (CSHQ>41). Children with poor sleep quality reported significant lower level of wellbeing and higher levels of anxiety, negative mood, and pain intensity, and showed higher level of disease activity. There was no significant difference on positive mood.

A logistic regression was performed to ascertain the effect of pain, disease activity, wellbeing, anxiety, and negative mood on the likelihood, that the children had poor sleep quality. **The model was statistical significant ($\chi^2(4) = 16.50, p=.006$) and explained 36.4% of the variance in poor sleep quality and correctly classified 75.5% of cases. Increasing level of anxiety symptoms was significant associated with an increased likelihood of poor sleep quality ($p=.01$).** None of the other predictor variables made a unique significant contribution.

Conclusions

- Disease activity, pain, and psychological wellbeing were negatively affected in children with poor sleep quality.
- Especially the level of anxiety symptoms where a significant predictor of having poor sleep quality.
- **This study highlights the importance of focusing on the impact of anxiety and worrying on children's sleep quality.**

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