Sleep Medicine 11 (2010) 17–22

Contents lists available at ScienceDirect

Sleep Medicine

journal homepage: www.elsevier.com/locate/sleep

Original Article

Childhood adversities and quality of sleep in adulthood: A population-based study of 26,000 Finns

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ARTICLE INFO

Article history:
Received 29 December 2008
Received in revised form 13 March 2009
Accepted 27 March 2009
Available online 4 December 2009

Keywords:
Childhood adversities
Child–mother relationship
Child–father relationship
Family conflicts
Quality of sleep
Population-based study

ABSTRACT

Objective: To find out if childhood adversities predict poor sleep quality in working age.
Methods: Survey data from the Health and Social Support (HeSSup) study was used ($N = 25,605$, 59% women). Negative childhood adversities and quality of sleep in adulthood were assessed by the questionnaire in 1998. Multinomial regression models were used.
Results: A graded association between childhood adversities and the quality of sleep in adulthood was found. Odds ratio (OR) of poor quality of sleep for those with multiple childhood adversities (3–6) was 3.64 (95% CI 2.94–4.50). The association between childhood adversities and the quality of sleep remained significant after adjustments for work status, use of psychotropic drugs, health behaviours, recent life events and child–parent relationships. Poor quality of sleep was clearly increased among those with both poor child–mother (OR 10.4, 95% CI 6.73–16.07) or poor child–father (OR 5.4, 95% CI 3.89–7.50) relationships and multiple childhood adversities. In the analyses of specific childhood adversities, frequent fear of a family member and serious conflicts in the family showed the strongest associations.
Conclusions: The strong association between childhood adversities and the quality of sleep in adulthood highlights the importance of early life circumstances on adult health. Early stage recognition, prevention and supportive measures against childhood adversities and serious family conflicts should be promoted.

1. Introduction

Childhood circumstances show longitudinal associations with variation in a broad range of health outcomes [1]. A strong graded association has been reported between adverse childhood experiences and multiple risk factors including health behaviours for several of the leading causes of death and disability retirement in adults [2,3]. In addition, recent evidence suggests that vulnerability to depression is affected by negative experiences during childhood and relationship with the parents [4,5]. Thus, childhood exposures seem to operate behind many health and lifestyle factors in adulthood.

Sleep disturbances, such as chronic insomnia, are common problems in populations of Western industrialised countries. Ten to 35% suffer from insomnia symptoms [6,7]. It has been estimated that in the general population insomnia is as common a condition as depression, but while depressive disorders have become well recognised public health problems with targeting interventions, insomnia and other sleeping problems are relatively ignored [8].

Sleep disturbances have been shown to be associated with many health risks and medical conditions, such as high alcohol intake, depression, work status and stressful life events [7,9,10]. Exposure to highly traumatic events, such as physical assault and death of a close family member, has especially been hypothesized to precipitate the onset of sleep disturbances [11–13]. But more research is needed on the complex associations between different factors during the life course in the development of chronic sleep disturbances.

Bader et al.'s study with non-treated adults suffering from primary insomnia indicated that adverse experiences in childhood seem to be associated with sleep in adults [14]. Insomniacs with many adverse childhood experiences exhibited more movement arousals, a greater number of awakenings, more disturbed sleep and increased nocturnal activity. Also family conflict predicted insomnia in adolescence [15]. Nevertheless, we lack population-based studies on the association between childhood adversities and sleep among adults.

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1389-9457/$ - see front matter © 2009 Published by Elsevier B.V.
doi:10.1016/j.sleep.2009.03.010

In this study, we investigated whether childhood adversities are associated with the quality of sleep among 26,000 working aged Finns. We hypothesized a dose–response association between the number of childhood adversities and quality of sleep as an adult and when adjusted for a number of confounding or modifying factors.

2. Methods

2.1. Data and study variables

Data were derived from the Health and Social Support (HeSSup) follow-up study on a sample of the Finnish population. The baseline survey was carried out by postal questionnaire during 1998 (N = 25,898, age groups: 20–24, 30–34, 40–44, 50–54, response rate 40.0%), and a follow-up questionnaire (response rate 80.2%) was sent during the end of 2003 through the beginning of 2004 to all those who responded to the first questionnaire. The study sample of this study consisted of all respondents from the 1998 questionnaire (N = 25,240–25,605).

Self-reported quality of sleep was elicited by asking the respondents to evaluate their quality of sleep with the following question: "How well do you usually sleep?" Four categories were used: good, quite good, quite poor and poor. Childhood adversities were enquired by asking whether the respondents had experienced the following adversities in their childhood: divorce or separation of the parents, long-term financial difficulties in the family, serious conflicts in the family, frequent fear of a family member, severe illness of a family member and alcohol problem of a family member [4,16]. The preset response options were no, yes, do not know or cannot say. The items were summed up and divided into three categories: 0, 1–2, 3–6 adversities. The reliability of the answers concerning reported childhood adversities was tested by calculating the kappa coefficients and the proportion of the same answers to items in 1998 and 2003 by age and quality of sleep. The proportions of the same answers by age varied between 75% and 97% and by quality of sleep between 74% and 97%. The kappa coefficients varied between 0.60 and 0.89, indicating a good to very good level of agreement (Table A1).

Work status was divided into two categories: 1 = working/studying/working at home; 2 = not working: unemployed/retired/doing something else. Use of psychotropic drugs, including antidepressants, sleeping pills and anxiolytes, was measured by the question: "How often have you used the following drugs during the previous year?" Five response options were no use, <10 days, 10–59 days, 60–180 days, >180 days (over 6 months). Symptoms of depression were measured by the 21-item Beck Depression Inventory (BDI) [17]. Smoking status was classified into three categories: non-smokers, ex-smokers, current smokers. Use of alcohol was classified into three categories: no drinking or mild drinking and no pass-outs, moderate or heavy drinking and no pass-outs, moderate or heavy drinking and pass-outs.

Body mass index (BMI) was calculated from the questions on current weight and height and divided into three categories: <25, 25–29, $\geqslant$30. An activity metabolic equivalent (MET) index was calculated to measure physical activity based on the questions on weekly amount and intensity of physical activity [18]. Physical activity was divided into three categories: low (MET hours/day <1.50), moderate (MET 1.50–5.9), high (MET $\geqslant$6).

Recent stressful life events included death of spouse, death of own child, death of other close relative, death of close friend, severe illness of a family member, and emotional, physical or sexual violence [10]. The response options concerning the occurrence of the presented life events included: never, within the previous 6 months, within the previous 5 years, over 5 years ago. Only the events that occurred within the previous 6 months were included. Child–mother and child–father relationships were assessed by asking: "How would you describe your relationship with your mother/father during childhood and adolescence?" The response alternatives included six options, but the scale was divided into two categories: good and poor.

2.2. Statistical methods

The association between childhood adversities and quality of sleep was analyzed using multinomial regression models. Women and men were pooled together since the results from the separate analysis by gender showed similar associations. Age group and gender-adjusted associations were examined in Model 0. To examine the contribution of work status, use of psychotropic drugs, health behaviour, recent life events and child–parent relationships additional adjustments were made in Models 1–5. Age- and gender-adjusted multinomial regression models were also fitted to examine the effects of each specific childhood adversity and child–parent relationship. The results are presented as odds ratios and their 95% confidence intervals. Statistical modelling was carried out using the SPSS for Windows software, release 15.0.

3. Results

Poor quality of sleep was reported by 14% of the participants (11% quite poor, 3% poor), 40% had experienced no childhood adversity, 42% reported 1–2 adversities and 19% 3–6 adversities. Older age, work status, recent life events and use of psychotropic drugs were associated with poor quality of sleep. Those with poor quality of sleep more often reported childhood adversities and poor child–parent relationships. In addition, health related risk behaviour, such as heavy alcohol consumption, smoking, obesity and physical inactivity were increased among those with poor quality of sleep (Table 1).

A graded association was found between childhood adversities and quality of sleep. Participants with multiple childhood adversities (3–6) were more likely to report poor quality of sleep than those with no adversity or 1–2 adversities: the odds ratio (95% confidence interval) for quite poor quality of sleep was 2.62 (2.33–2.95) and 3.64 (2.94–4.50) for poor quality of sleep under Model 0. Adjustments for work status in Model 1, health behaviours in Model 3 and recent life events in Model 4 had a modest effect on the association between childhood adversities and quality of sleep (adjusted odds ratios for poor quality of sleep were: 3.30, 3.24 and 3.54, respectively). Adjustments for psychotropic drugs in Model 2 and child–parent relationships in Model 5 decreased the odds ratios (95% confidence interval) for poor quality of sleep from 3.64 to 2.60 (2.08–3.25) and to 2.80 (2.22–3.54) (Table 2).

Results from the separate analysis by gender showed similar associations, but adjustments for work status and health behaviours had somewhat stronger effect in men than in women. In men the odds ratio for poor quality of sleep decreased to 2.99 after adjustment for work status and to 2.92 when health behaviours were adjusted. We also tested the effect of depression, as measured by the 21-item Beck Depression Inventory (BDI-21), on the association between childhood adversities and quality of sleep in a separate model (not shown). The effect of poor mental health as measured by BDI-21 did not differ from the effect of psychotropic drugs adjusted for in Model 2.

The individual age- and gender-adjusted associations of specific childhood adversities with quality of sleep are shown in Fig. 1. Frequent fear of a family member showed the strongest association: the odds ratio (95% confidence interval) for poor quality of sleep was 2.96 (2.45–3.58) and 2.20 (1.96–2.48) and 1.41 (1.29–1.54) for quite