Journal of Psychosomatic Research 74 (2013) 290–295

Contents lists available at SciVerse ScienceDirect

Journal of Psychosomatic Research

Type D personality is associated with sleep problems in adolescents. Results from a population-based cohort study of Swedish adolescents

Emelie Condén [a,*], Lisa Ekselius [b], Cecilia Åslund [a]

[a] Centre for Clinical Research, Uppsala University, Central Hospital, Västerås, Sweden
[b] Department of Neuroscience, Uppsala University, Sweden

ARTICLE INFO

Article history:
Received 6 April 2012
Received in revised form 27 November 2012
Accepted 28 November 2012

Keywords:
Adolescents
Sleep behaviours
Sleep disturbances
Sleep hours
Type D personality

ABSTRACT

Objective: Sleep problems are associated with an increased risk of psychiatric and somatic diseases. Type D personality, or the distressed personality, refers to the joint tendency to experience negative emotions and to inhibit self-expression in social interaction. Type D personality is associated with an increased number of health complaints including cardiovascular diseases. The present study investigated whether Type D personality was associated with sleep problems among adolescents.
Methods: The study was part of the Survey of Adolescent Life in Västmanland 2008 (SALVe 2008). A total of 5012 adolescents (age 15–18 years old) completed a questionnaire including the Type D measurement DS14 and questions on sleep disturbances, sleep hours during school nights, and sleep hours during weekend nights.
Results: Adolescents with a Type D personality had an approximately four times increased risk of having sleep disturbances. Moreover, Type D personality was associated with sleeping fewer hours.
Conclusion: As adolescence represents a formative period for development it is critical to identify sleep disorders early. The presence of Type D personality associated with poor sleep demands attention because sleep problems may be an early stage in the development of later diseases.

Introduction

Type D personality, or the distressed personality, refers to the joint tendency to experience negative emotions and to inhibit self-expression in social interaction [1]. It is characterised by two global personality traits: negative affectivity and social inhibition [2]. This personality has been associated with increased morbidity and mortality in patients with cardiovascular disease [3–7]. Type D personality is also associated with several emotional and social difficulties such as depression, anxiety, low level of subjective well-being, lack of social support and low quality of life which have a negative impact on mental and physical health [8–12]. Furthermore, individuals with this personality type may be more likely to engage in maladaptive health behaviours, such as a sedentary life style [13,14].

A large body of research shows the important role of sleep in somatic, cognitive and psychological processes [15]. Sleep is an active process in the brain that is necessary for restorative functions, particularly during development [16,17]. Moreover, sleep serves an important role in body homeostasis such as metabolic, immune, thermoregulatory and respiratory functions [15].

The amount of sleep hours received is an important indicator of health and well-being among adolescents. Adolescence is a vulnerable period, during which many physiological, cognitive and psychological processes mature [15,17]. In fact, poor sleep habits later on in life are often established during adolescence [18]. Most research has proposed that adolescents require at least 6–8 h of sleep each night [19]. A population-based study on adolescents showed that the prevalence of restricted sleep, i.e. <6 h, was 20% [20]. Associations have been found between adequate sleep among adolescents and life appreciation, anxiety, depressive symptoms, stress management and health behaviour [21–24].

Studies investigating the associations between personality dimensions and sleep are sparse. Bertelson and Monroe showed a relationship between neuroticism and sleep disturbance in adolescents, and also demonstrated a similarity of personality dynamics of adolescents with sleep problems [25]. Vincent et al. found associations between short sleep and neuroticism, suggesting an association between personality and sleep length [26].

Recently, De Fruyt and Denollet identified Type D personality as a significant predictor of sleeping problems in adults [27]. Type D personality with its subcomponents of negative affectivity and social inhibition may be a risk factor for poor sleep among adolescents as well. The aim of the present study was, therefore, to investigate the associations between Type D personality and sleep problems among adolescents. We hypothesised that Type D personality is associated with sleep problems among adolescents.

* Corresponding author at: Centre for Clinical Research, Central Hospital S-721 89 Västerås, Sweden. Tel.: +46 21 17 43 52.
E-mail address: emelie.conden@ltv.se (E. Condén).

0022-3999/$ – see front matter © 2012 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.jpsychores.2012.11.011

Methods

The study was part of the Survey of Adolescent Life in Västmanland 2008 (SALVe 2008), a survey distributed biannually by the County Council of Västmanland in order to monitor the psychosocial health of the adolescent population of the county. Västmanland is situated about 100 km west of Stockholm, and is a middle sized representative region of Sweden due to its mix of rural and urbanised areas. All the students in the county in the 9th grade of elementary school (15–16 years old) and the 2nd year of secondary school (17–18 years old) comprised the target population. For more information regarding the study population, see Fig. 1. The study followed the Swedish guidelines for social science and humanities studies according to the Declaration of Helsinki. Participation in the study was anonymous and voluntary.

Measures

Type D personality was measured using the DS14 [1]. It consists of two 7-item subscales and measures negative affectivity (NA) and social inhibition (SI), with a maximum score of 28 on each scale. According to Denollet [1], a cut-off of 10 or more on both scales is used to classify a respondent as a Type D personality. Denollet based the cut-off on the median split in representative samples. In the present study, Cronbach's α was 0.86/0.79 for the NA and SI subscales. It has been suggested that Type D personality may be better represented as a dimensional construct [28]. We therefore created a summation-index of the two subscales as a complement to the traditional cut-off according to Denollet. In the present study we refer to the summation index as the "Type D personality index".

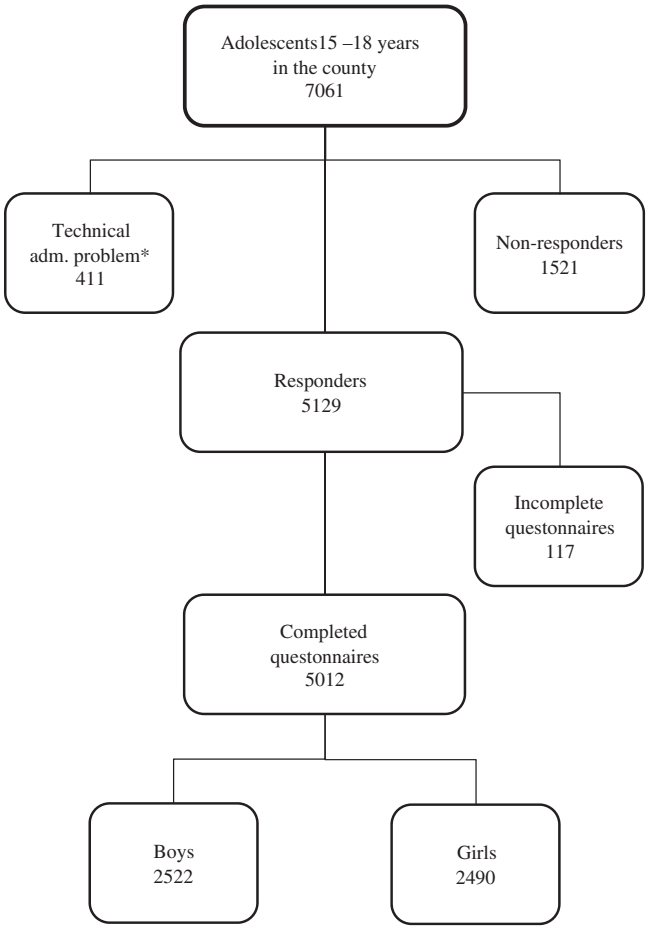

Fig. 1. Flow chart of the study population. * Moved, dropouts and administrative non-respondents.

Assessment of sleep disturbances

The measurement of sleep disturbances was a modified version of the Karolinska Sleep Questionnaire [29], inquiring about frequency of sleep disturbances and subjective sleep quality. Items covered were: During the last three months, how often have you experienced: difficulties waking up?; Insufficient sleep?; Not being thoroughly rested?; Disturbed sleep?; Feeling exhausted when waking?; Sleepiness during school work?; Sleepiness during your spare time?; Drowsiness/prolonged fatigue?; Answer alternatives were: Never (0), Seldom, occasional moments (1), Sometimes, a few times per month (2), Often, 1–2 times per week (3), Mostly, 3–4 times per week (4), Almost always, 5 times per week or more (5). A summation-index was created with a range from 0 to 40 points. The internal consistency of the index items was $\alpha = 0.90$. A dichotomised variable for the logistic regressions was created where $+1SD$ was coded as many sleep disturbances.

Sleep hours

We chose to differ between school nights and weekend nights in the analyses. The participants rated their sleep hours with the questions: 1. For how long do you sleep on average per night during school nights? 2. For how long do you sleep on average per night during weekends? Answer alternatives were: 1. Less than 3 h; 2. About 3–4 h; 3. About 4–6 h; 4. About 7–8 h; 5. About 9–10 h; 6. 11 h or more. For the logistic regressions, dichotomised variables were created where <6 h per night was defined as too little sleep for school nights and weekend nights respectively.

Smoking habits

Do you smoke? Answer alternatives were: 1. No, I have never smoked; 2. No, I have quit smoking; 3. Yes, I smoke sometimes; 4. Yes, I smoke every day. For the logistic regressions a dichotomised variable was created where answer alternatives 1–3 were defined as non-everyday smokers and answer alternative 4 was defined as everyday smokers.

Computer use

How many hours per day do you spend on a computer during your leisure time, excluding school time? Answer alternatives were: 1. Do not use computer; 2. Less than 1 h; 3. Between 1 and 2 h: 4. Between 2 and 5 h; 5. More than 5 h. A dichotomised variable was created for the logistic regressions where the participants were divided by hours spent using a computer during leisure time: <5 h (0), >5 h (1). More than 5 h was labelled excessive computer use.

Exercise habits

How often do you exercise, during your leisure time for more than 30 min, to the point that you feel breathless/sweaty? Answer alternatives were: Every day (1); 4–6 times a week (2); 2–3 times a week (3); Once a week (4); 1–3 times a month (5); <Once a month (6); Never (7). A dichotomised variable was created for the logistic regressions where the participants were divided by exercise habits: Exercises for a minimum of 30 min at least once a week (0) and exercises less than once a week (1).

Alcohol consumption

The participants answered the first three questions of the structured Alcohol Use Disorders Identification Test (AUDIT-C) to measure risk consumption [30]: This scale was modified according to Nilsson et al. [31] for adjustment to the adolescent population. The AUDIT-C index was created by summarising the scores of the three items (0–15 points). The internal consistency of the AUDIT-C questions was $\alpha = 0.91$. Furthermore, we created a dichotomised variable where the highest quartile within sex was used as a cut-off value for high alcohol consumption.