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PRIORITY PAPER EVALUATION

Mark Cropley

Department of Psychology,
University of Surrey,
Surrey, GU2 7XH, UK
Tel: +44 1483 686928
Fax: +44 1483 689553
mark.cropley@surrey.ac.uk

Alice Theadom

Department of Primary Care and Public Health,
Brighton and Sussex Medical School,
Brighton, BN1 9PH, UK
a.theadom@bsms.ac.uk

Sleep Disturbance in Fibromyalgia Syndrome

Evaluation of: Bigatti SM, Hernandez AM, Cronan TA, Rand KL: Sleep disturbances in fibromyalgia syndrome: relationship to pain and depression. ***Arthritis Rheum.*** **59(7), 961-967 (2008).** Sleep disturbance is a widely reported and debilitating concomitant of fibromyalgia syndrome (FMS) and plays a pivotal role in exacerbating patients reporting of symptoms. Bigatti and colleagues report a longitudinal study that examined self-reported sleep, pain, depression and physical functioning at baseline in FMS patients and again at a 12 month follow-up. Their results support previous research in showing that there is a bi-directional correlation between sleep and pain experience. Moreover the results demonstrated that sleep predicted pain, pain predicted physical functioning, and physical functioning predicted depression, although causality was not actually demonstrated. Nonetheless,

this research highlights the prevalence of sleep problems in FMS, and the critical role sleep plays in the quality of life for many patients.

Fibromyalgia Syndrome (FMS) is a chronic rheumatic condition characterised by widespread pain, tender points and fatigue [1]. Diagnosis is usually confirmed by the reporting of persistent and widespread pain for at least three months and pain in 11 out of 18 tender points on digital palpitation (with the amount of pressure sufficient to blanch a finger nail). The exact cause of the condition is not known and symptoms can appear at any stage of life, though symptom onset is most typical between the ages of 55-64 years [2]. Fibromyalgia Syndrome predominantly affects females (female: male ratio of 7-9:1), and it is estimated to affect approximately 4% of the adult population [3].

Sleep disturbance is a very common complaint and research has demonstrated that between 70-90% of FMS patients experience some form of sleep disturbance [4,5], although this can be as high as 99% for patients attending self-help groups [6]. For some, poor sleep becomes a central issue in the course of FMS and poor sleep is inextricably linked with the experience of pain [7,8,9,10]. This association appears to be bi-directional with poor sleep linked to increased reporting of pain, and increased pain linked to poor sleep [8]. Another common complaint is depression [11,12], although less is known about the interaction/s between sleep depression, fatigue, well-being and physical functioning in FMS.

The reviewed paper by Bigatti and colleagues [13] reports a prospective study that examined sleep, pain, depression and physical functioning in fibromyalgia patients at baseline and at a 12 month follow-up. The study had a reasonable large sample of 492 patients with complete data at follow-up. Consistent with previous

studies of FMS and sleep, sleep disturbance was highly prevalent with 96% of the sample scoring above the threshold. Bigatti et al., however used a cut of score of 5 or greater as an indicator of poor sleep, whereas a more stringent global PSQI score of >6 has also been considered as being indicative of a sleep disturbance in pain patients [14].

Notwithstanding, it is clear that sleep is a major health concern in these patients. Consistent with previous research [15], it was interesting in the Bigatti et al. study that sleep quality remained relatively stable over the 12 months of the study, although there was a statistical increase in reported sleep quality at 12 months. However, an improvement in the mean global PSQI score of .47 is relatively minor clinically. There is currently no effective treatment for sleeping problems in FMS. Medications (hypnotics or sedating antidepressants are widely prescribed to improve sleep for patients with FMS, although they have been found to have only short term benefits, and can have many unwanted side effects [15]. The long term use (over 4-6 weeks) of benzodiazepines for the treatment of sleep difficulties is no longer recommended [16].

An important, yet unresolved issue in the pain literature is whether sleep precedes/predicts pain, or whether pain precedes/predicts sleep quality [8,17,18,19,20,21]. The temporal sequence of pain and sleep presents an interesting challenge clinically, yet there has only been a small number of studies investigating this issue, and the question of directionality remains unanswered. For example, Affleck et al., [8] investigated the association between sleep quality and pain intensity and attention to pain over 30 consecutive days in 50 women with fibromyalgia syndrome. Sleep and pain showed bi-directional correlations, poor sleep was associated with a more painful day, and a more painful day was followed by a poor nights sleep. The study by Bigatti et al. attempts to add to the literature and examined

the relationship between sleep problems and the experience of pain, depression and physical functioning. They reported that sleep predicted pain (β = 0.13), pain predicted physical functioning (β = -0.13), and physical functioning predicted depression (β = -0.10). Bigatti et al's study differed to the Afflect et al's study by examining the temporal associations over a period of one year, and it is interesting that sleep predicted pain 12 months later. What is not clear is why there was a long time frame between assessment points, and the authors point out, that future research should examine these relationship between these variables repeatedly through-out the year. Although the results were based on path analysis, this is essentially a correlational procedure and it is therefore difficult to attribute causality. The relationship between sleep and pain may be caused by a third variable, such as negative affectivity. Nevertheless Bigatti et al's study highlights the pivotal role sleep has in symptom reporting and mood in fibromyalgia syndrome and its potential clinical implications.

Potentially there are many different reasons why patients with FMS experience poor sleep. It is been shown that activity levels at night are higher in patients with FMS compared to controls [22]. There is also evidence of possible biological factors, such as, abnormalities in the sleep physiology of people with FMS. For example, a number of studies using polysomnography monitoring have revealed that people with FMS have increased stage 1 light sleep [23] and less (Stage 4) slow wave sleep [24,25] and are more easily awoken than controls [26]. Further, it has also been proposed that people with FMS are more likely to experience an increase in alpha waves which are associated with wakefulness, during sleep (known as the alpha-delta complex), although the results are inconsistent, and the alpha-delta complex does not appear to be specific to people with FMS [27].

Medications are often prescribed to ease pain yet many of those commonly used to relieve pain in FMS may disturb sleep and can lead to daytime drowsiness thereby exacerbating levels of fatigue [28]. The Bigatti et al's and similar studies, raise an interesting possibility that more should be done to treat the underlying sleep disorder, and also explore the use of non-pharmacological interventions to improve sleep for people with FMS.

Executive summary

Bigatti et al's study supports existing literature by demonstrating chronic sleep problems in patients with fibromyalgia syndrome (FMS) and highlights the pivotal role sleep plays in symptom reporting in patients with FMS.

Their results are consistent with previous literature demonstrating a bi-directional association between sleep and pain, but the results also demonstrated that sleep predicted pain.

Sleep problems are compounded by many medications FMS patients take to deal with pain and depression and greater attention should be directed to improving sleep quality.

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