

## Frequency and severity of insomnia in chronic low back pain

Bakhtawar Majid, Mohammad Asim Arif , Rabia Saeed, Ashfaq Ahmed,  
Mehreen Fatima

University institute of Physical therapy, University of Lahore, Pakistan

**Objective:** To find the frequency and severity of insomnia in chronic low back pain patients.

**Methodology:** The data were collected from 358 patients from different government hospitals suffering from chronic low back pain at least from three months. A questionnaire and insomnia severity index were used to measure the severity. Statistical work was done by SPSS software.

**Results:** The study included 358 patients, out of which 210 (58.6%) had insomnia and 148 (41.3%)

had no insomnia. Out of those 58.6%, only 2.85% had no clinically significant insomnia, 61.9% had sub-threshold insomnia and 35.2 had moderate insomnia and majority faced the sleep disturbance at mid of the night almost every night.

**Conclusion:** Frequency and severity of insomnia in chronic low back pain was high. (Rawal Med J 201;42:528-530)

**Keywords:** Chronic low back pain, insomnia, insomnia severity index.

### INTRODUCTION

Low back pain (LBP) is one of the most commonly occurring musculoskeletal disorders. According to duration, it can be divided into three categories acute, sub-acute and chronic. LBP is considered chronic if it has been persistent for greater than three months. Insomnia is related to reduced sleep duration and quality, increase time to fall asleep, poor day time function and greater dissatisfaction with your sleep habits.<sup>1</sup> It can be acute, chronic and transient but depending upon the level of severity it can be further divided into three types sub threshold, moderate and severe. Insomnia in chronic low back patients can occur in early, middle or late time of sleep.<sup>2</sup>

Insomnia is common in painful conditions such as LBP.<sup>3</sup> Pain and insomnia both equally effect each other if it is considered that pain disturbs sleep then it is also thought that sleep disturbance may increase pain.<sup>4</sup> There is a bidirectional relationship between sleep disturbance and intensity of pain.<sup>5</sup> Sleep disturbance differ according to the intensity and severity of pain, therefore, it is highly recommended to take in account the sleep disturbance while treating LBP.<sup>6</sup>

A study showed that 10 to 30% of the people with musculoskeletal or chronic LBP suffer from sleep

disturbance.<sup>7</sup> In patients with chronic low back or chronic neck pain, insomnia should be checked so an appropriate treatment can be done.<sup>8</sup> Untreated or ignored, LBP may lead to severe or even long term functional impairments.<sup>9</sup> It is also considered that sleep quality can be a good predictor of pain.<sup>10</sup> The aim of this study is to enhance awareness about the relationship between sleep disturbance and chronic low back pain

### METHODOLOGY

In this cross sectional study, data were collected from 358 chronic low back patients selected randomly from different government hospitals including Jinnah Hospital, Sir Ganga Ram Hospital and Mayo Hospital, Lahore, Pakistan. There was no age limit. Those patients were included who had back pain from at least 3 months. The patient's with any fracture, pathological condition or any malignancy and radiculopathy were excluded. The non-probability convenient sampling technique was used and the sample size was collected by following formula

$$n = \frac{z_{\alpha/2}^2 p(1-p)}{d^2}$$

All information collected were kept confidential and consent form was signed by participants.

The data was collected by a valid and reliable questionnaire named as Insomnia Severity Index. The insomnia severity index had 7 questions. Each question reveals an important fact like satisfaction with sleep, problems falling and staying a sleep, problems waking up, impairment in quality of life and behavior changes etc. The data included, age, gender, pain duration, pain intensity according to visual analogue scale and presence of sleep disturbance. Visual Analogue Scale was used for pain assessment.

Total score of insomnia severity index ranges from (0 to 28). Following are insomnia severity index score categories including category 1 (07) indicating "no clinically significant insomnia," category 2 (814) indicating "sub-threshold insomnia," category 3 (1521) indicating "moderate severity" and category 4 (2228) indicating 'severe.' Data analysis was done by using SPSS software.

## RESULTS

Sleep disturbance and was found in 210 (58.7%) patients and 148 (41.3%) did not have it. The severity of insomnia was 2.9% (6) in category 1, 61.4% (129) in category 2, and 35.7% (75) in category 3 (Table 1). There was more sleep disturbance in females (Table 2).

**Table 1. Insomnia severity categories.**

Category	1	2	3
Number of patients	6	129	75

**Table 2. Gender and sleep disturbance.**

Sleep disturbance	Male	Female
Yes	79	131
No	66	82

## DISCUSSION

The sleep quality have been worse in the effected group in comparison of healthy group moreover the complaint of sleep quality was found to be more among females.<sup>11</sup> A study of 9911 community residents revealed that 42.0% LBP patients had poor sleep quality.<sup>12</sup> Another study on 225 patients showed that 36.9% had severe chronic LBP, out of

which 25.8% had insomnia.<sup>13</sup> Another study on 52 patients having LBP greater than or equal to three months with minimum age of 18 years, poor sleep or impaired sleep quality was highly linked with low back pain.<sup>14</sup>

Decreased quality of life and poor sleep quality are common problems in patients suffering from chronic LBP. It is projected that almost 50 to 59% of people with chronic LBP have sleep trouble, resulting in to deprived daytime function and larger sleep displeasure and grief.<sup>15</sup>

It was indicated that chronic pain and sleep disturbances establish a cycle where pain plays a role to sleep issues and these issues in return participate to cause pain. If insomnia is treated this leads to subsequently improve both sleep deprivation and pain, causing to discontinuity of the cycle. It was also concluded that insomnia is not only a indication of the chronic low back pain, but somewhat an self-regulating comorbid condition wanting specific management. No fatigue or tiredness was checked in my study. There were no age limitations

## CONCLUSION

The frequency and severity of insomnia in chronic low back pain is high. We found 58.7% patients with LBP had insomnia. The complaint of sleep disturbance was more among females. Most of the sleep problems were faced at the mid of the sleep. The major sleep disturbance occurred almost every night.

### Author Contributions:

Conception and design: Bakhtawar Majid  
 Collection and assembly of data: Bakhtawar Majid  
 Analysis and interpretation of the data: Mehreen Fatima  
 Drafting of the article: Rabia Saeed  
 Critical revision of the article for important intellectual content: Mohammad Asim Arif  
 Statistical expertise: Mehreen Fatima  
 Final approval and guarantor of the article: Ashfaq Ahmed  
**Corresponding author email:** Bakhtawar Majid: majid\_bakhtawar@yahoo.com  
**Conflict of Interest:** None declared  
 Rec. Date: Mar 16, 2017 Revision Rec. Date: Jul 16, 2017 Accept Date: Jul 29, 2017

## REFERENCES

- Kim SH, Sun JM, Yoon KB, Moon JH, An JR, Yoon DM. Risk factors associated with clinical insomnia in chronic low back pain: A retrospective analysis in a university hospital in Korea. *Korean J Pain* 2015;28:137-43.

2. Bahouq H, Allali F, Rkain H, Hmamouchi I, Hajjaj-Hassouni N. Prevalence and severity of insomnia in chronic low back pain patients. *Rheumatol Int* 2013;33:1277-81.
3. Alsaadi SM, McAuley JH, Hush JM, Bartlett DJ, Henschke N, Grunstein RR, et al. Detecting insomnia in patients with low back pain: accuracy of four self-report sleep measures. *BMC Musculoskeletal Disord* 2013;14(1):1.
4. Goforth HW, Preud'homme XA, Krystal AD. A randomized, double-blind, placebo-controlled trial of eszopiclone for the treatment of insomnia in patients with chronic low back pain. *Sleep* 2014;37:1053.
5. Alsaadi SM, McAuley JH, Hush JM, Bartlett DJ, McKeough ZM, Grunstein RR, et al. Assessing sleep disturbance in low back pain: the validity of portable instruments. *PloS One* 2014;9:e95824.
6. Marty M, Rozenberg S, Duplan B, Thomas P, Duquesnoy B, Allaert F, et al. Quality of sleep in patients with chronic low back pain: a case-control study. *Eur Spine J* 2008;17:839-44.
7. van de Water AT, Eadie J, Hurley DA. Investigation of sleep disturbance in chronic low back pain: an age-and gender-matched case-control study over a 7-night period. *Manual Therapy* 2011;16:550-6.
8. Artner J, Cakir B, Spiekermann J-A, Kurz S, Leucht F, Reichel H, et al. Prevalence of sleep deprivation in patients with chronic neck and back pain: a retrospective evaluation of 1016 patients. *J Pain Res* 2013;6(1-6):b22.
9. Yiengprugsawan V, Hoy D, Buchbinder R, Bain C, Seubsman S-a, Sleight AC. Low back pain and limitations of daily living in Asia: longitudinal findings in the Thai cohort study. *BMC Musculoskeletal Disord* 2017;18(1):19.
10. Tang N, Goodchild CE, Sanborn AN, Howard J, Salkovskis PM. Deciphering the temporal link between pain and sleep in a heterogeneous chronic pain patient sample: a multilevel daily process study. *Sleep* 2012;35:675-87.
11. Sezgin M, Hasanefendioğlu EZ, Sungur MA, Incel NA, Çimen ÖB, Kanık A, et al. Sleep quality in patients with chronic low back pain: A cross-sectional study assessing its relations with pain, functional status and quality of life. *J Back Musculoskeletal Rehabil* 2015;28:433-41.
12. Murase K, Tabara Y, Ito H, Kobayashi M, Takahashi Y, Setoh K, et al. Knee Pain and Low Back Pain Additively Disturb Sleep in the General Population: A Cross-Sectional Analysis of the Nagahama Study. *PloS One* 2015;10(10):e0140058.
13. Wang H-Y, Fu T-S, Hsu S-C, Hung C-I. Association of depression with sleep quality might be greater than that of pain intensity among outpatients with chronic low back pain. *Neuropsychiatric Dis Treatment* 2016;12:1993.
14. Kanaan S, Siengsukon C, Arnold P, Burton D, Emmanuel N, Sharma N. Relationship between sleep quality and functional and psychological symptoms in patients with chronic low back pain. *Physiotherapy* 2015;101:e713-e4.
15. Blake C, Cunningham J, Power CK, Horan S, Spencer O, Fullen BM. The impact of a cognitive behavioral pain management program on sleep in patients with chronic pain: Results of a pilot study. *Pain Med* 2016;17:360-9.