Research Article

Journal of Psychological Medicine

Actigraphic and Self-reported Sleep in Traffic Accident Victims.

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Received Date : April 13, 2024
Accepted Date : April 15, 2024
Published Date : May 15, 2024

ABSTRACT

Context: A few months following their trauma, accident victims report having less sleep, which increases their likelihood of developing PTSD by twofold and acts as a mediator in the process. It is also common to speculate that PTSD patients have a "sleep state misperception" because subjective and objective sleep metrics frequently differ in these individuals.The purpose of this study is to compare the sleep quality of individuals who have been in a traffic accident with healthy volunteers who have never been in an accident, and to evaluate any differences in the sleep quality measures that are objective.

Procedures: Within ten days of the accident, we recruited 31 age and sex-matched controls who had never been in an accident before, and 25 hospitalized accident sufferers. A standardized clinical interview (SCID) was administered to the individuals after three months.Findings: At the three-month check-in, none of the victims satisfied the requirements for any type of mental illness, although they did all receive higher ratings on the PTS. Both the sleep log and the actigraphy measures on the two recording nights revealed no group differences, but on the PSQI, they reported slightly worse sleep than controls for the preceding two weeks. Acts of artmeasurements compared to log measures revealed shorter sleep onset latencies.

Findings: After three months, the accident victims experienced very little disruptions in their sleep. These data call into doubt the notion that victims of road accidents have a "sleep state misperception."

Keywords: Sleep, traffic accident, actigraphy, PTSD

INTRODUCTION

Approximately 2 million automobile accidents are reported to police each [1]. Although traffic accident fatalities have reduced by 25% since 2005.In 2014 [2], there was a 10.2% increase in the number of badly injured victims, while the number of slightly hurt decreased. By 4.8% between 2011 and 2012 [1]. Insomnia and other sleep disorders are often linked to traumatic situations. The continuous neurobiological reaction disrupts the normal sleep-wake regulating process. By activating the arousal areas of the central nervous system. Hyperarousal is associated to the pathophysiology of insomnia and neurobiological changes following stressful experiences, affecting patients' physical recovery [3–4].According to estimates, 70% of persons who experience a stressful event have trouble sleeping [5].

Ten days following auto accidents, patients had trouble sleeping was noted on the Pittsburg Sleep Quality Index (PSQI), and a month later it was still noticeable [6]. According to the PSQI, sleep disturbances are more frequently reported in correlation with psychological symptoms of acute stress disorder [7]. They had shorter sleep durations [8] and longer waking after sleep onset (WASO) than do controls who do not experience traumatic events [9].The accident patients' self-reported sleep quality one year later did not differ, either because their sleep had returned to normal or because it was seen differently [10]. Trauma victims who experience fragmented sleep may be twice as likely to Subjective sleep data is provided via sleep logs and sleep questionnaires. Actigraphy, on the other hand, offers an unbiased measurement and is easy, affordable, and undemanding of the subject. It is a tried-and-true technique to evaluate sleep objectively throughout of several nights spent in the patient's bedroom at home. Despite its benefits, sleep actigraphy is recognized to have drawbacks when compared to gold standard polysomnography (PSG), such as a low specificity for sleep caused by the misclassification of wake periods with minimal wrist movement as sleep [13]. Moreover, there is frequently a disparity between subjective and objective sleep metrics, and self-reports rather than actigraphy are the primary source of information regarding perceived sleep quality. Disparities between subjective and objective (actigraphic) sleep reporting, for instance, have been documented in PTSD patients [14–16]. For instance, women with PTSD underreported the time of their sleep beginning. The first three months of the study showed that survivors of motor vehicle accidents who later developed PTSD had worse

sleep quality than those who did not.following a car accident [6]. This led us to hypothesize that, three months after the accident, victims would report having slept less than matched controls for the previous two weeks. This hypothesis was supported by sleep logs and actigraphic measures, but we also tested for differences between these two types of measures because we suspected that self-reported sleep might be more impacted by the accident than actigraphic measures. Unlike previous research [10], we evaluated both the objective and subjective aspects of sleep quality on the same evenings.

METHOD

At the University Hospital in Dresden, Germany, patients who had been engaged in a traffic accident during the previous two weeks were recruited, along with healthy controls of similar age and gender.Involved in a car collision during the past three months. Participants were 18-65 years old and smoked fewer than ten cigarettes per day. Participants in both the experimental and control groups were excluded if they had experienced another severe trauma within three months of recruitment or had a DSM-IV Axis I Disorder at the time of the accident, as assessed by the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-IV). Prior to the road collision, participants reported no sleep disorders. The participants completed the Brief Symptom Inventory's Global Severity Index (GSI) and were questioned about their medical and drug histories (BSI-18) [19], which is divided into three subscales with six items each: depression (DEPR), anxiety (ANX), and somatization (SOMA). The total of the six-item subscale scores is the global score. Its range is 0 to 72, while the ranges of the three subscales are 0 to 24. Not a single competitor achieved a worldwide score higher than 62.

Participants self-reported the severity of PTSD symptoms using the Posttraumatic Diagnostic Scale (PDS) [20]. They ranked their level of experience with each of The DSM-IV PTSD symptoms were rated on a scale of 0 (not at all or only once) to 3 (five or more times a week / very often) and categorized by compromised areas of life, such as household, occupation, leisure time, or sexuality. The patients' Injury Severity Score (ISS) was computed based on the injuries they sustained. This medical score evaluates trauma severity and corresponds with mortality, morbidity, and inpatient length following trauma.

RESULTS

The study included 29 men (14 patients, 15 controls) and 27 women (11 patients, 16 controls). Patients (P) and controls (C) showed no difference.Age: t(54) = 1.12, p = 0.27: P-M = 41.0 (SD = 11.1) and C-M = 37.3 (SD = 12.9). Patients' ISS ranged from 0 to 34, with 88% having an ISS of less than three, indicating at least one moderate injury. Every patient has to stay in the hospital for a minimum of one night. The amount of sleep medicine consumed by the patients (M = 1.13 (SD = 0.45) and the control group (M = 1.00 (SD = 0)) did not drastically change.The SCID did not identify any patient or control as having a psychiatric illness. GSI did not change between the groups (t(50) = –0.52, p = 0.61). No individual attained the GSI disorder criteria (GSI > 62). Table 1 lists the means and standard deviations of the traffic victims and controls in the PSQI for the previous two weeks.The GSI and sleep parameters were subjected to Spearman correlation calculations. The first night's perceived sleeping time, measured in minutes, had a negative correlation (r = -0.286, p = 0.04) with GSI. Moreover, no meaningful associations were found.

DISCUSSION

We expected to discover severe sleep disturbance in accident victims three months after the disaster, with higher ratings on the Posttraumatic Diagnostic Scale compared to controls. The accident was severe enough to warrant hospitalization. During the three-month follow-up, there were no significant differences in self-report or actigraphic sleep measurements between victims and controls. Victims reported slightly lower sleep based on a PSQI over the previous two weeks. Retrospective evaluation of subjective sleep quality during the two weeks prior to data collection revealed variations consistent with earlier research. [10]victims of automobile accidents having a subjectively worse quality of sleep. Actigraphy may have confused our finding—that it scored fewer minutes SOL than the logs—for sleep when it was lying quietly awake in an attempt to fall asleep [24]. Actigraphy's primary drawback and an obstacle to the creation of more advanced algorithms is this [25]. Moreover, contrary to earlier research [14–16], there were no differences between subjective and objective (actigraphy) sleep parameters. Previous research [10] discovered a difference between PTSD patients' subjective reports of their sleep quality and actigraphic measurements.

This suggests that PTSD patients experience sleep misperceptions rather than true sleep disturbances.

Our findings call into doubt this notion.Self-reports of past sleep may be influenced by memory or expectancy biases, and actigraphy may be inaccurate for sleep onset latency and wake after sleep onset. However, the absence of group effects on recording nights suggests that sleep was normal.

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