

A Look at Worldwide Sleep Disturbance

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Abstract

A perspective from the United States on sleep reports that twenty-five percent of adults report not getting sufficient sleep. Sleep in America Polls by the National Sleep Foundation findings indicate that adolescents reported getting, on average, six and a half of the nine hours sleep they need each night. With regard to work in America, it is estimated by the Centers for Disease Control National Institute for occupational Safety and Health reported that 41 million workers get less than six hours of sleep a night (i.e., 7 to 8 hours is recommended). Metabolic changes in the body (e.g., heart rate, insulin resistance, systolic blood pressure) occur with poor sleep quality. This phenomenon is referred to as cardio metabolic health vulnerability to restricted sleep. Health professionals (particularly Sleep Specialists) are able to identify the impact of sleep disturbances on their patients. This and other poor sleep conditions need to be detected and treated by a health care specialist.

Keywords: Sleep quality; Ratings of sleep; Sleep in international measures; International sleep medicine

The International Classification of Functioning, Disability and Health system (ICF) has been utilized to study patient complaints from 54 countries as diagnosed by Sleep Specialist professionals. A worldwide perspective was obtained using the ICF framework as it provided a consistent viewpoint of the symptoms of sleep disorders as they related to patients' functioning [1,2]. A study conducted in the United States gained worldwide attention using the National Health Interview Survey of civilian non-institutionalized workers responses that their total daily self-reported sleep time and weekly working hours placed them at risk for work-related injury [3,4]. Sleep medicine is a worldwide field with investigations identifying the association between sleep disorders and diabetes, obese pregnant women at risk for sleep apnea and preeclampsia, restless legs syndrome/periodic limb disorder and vascular disease/hypertension and insomnia and metabolic over activity in wakefulness brain centers. In adolescents, worldwide survey studies have identified sleep patterns delaying with increasing age, with Asian adolescent bedtimes later than North American and Europe yielding less total sleep time and more excessive daytime sleepiness. On weekends, across the world, bedtime is two hours later [5-7].

Health and Disease Related to Sleep Issues

A common condition, nasal congestion affects approximately twenty percent worldwide population. The source of the nasal congestion varies and leads to large (e.g., estimates of \$6 billion in the United States) [1,2]. While estimates vary, nasal congestion has been identified as one of the conditions contributing to sleep disturbances.

Restless leg syndrome is reported in higher frequencies in more northern latitude countries in relation to distance from the equator with European countries' reportings of the distinction more so [8-11]. Gastro Esophageal Reflux Disease (GERD) is a common global disorder and is worsened by lifestyle factors [10]. In Japan, standard measures of the frequency of GERD revealed higher proportions of lifestyle factors contrary to prevent GERD, comparatively than other nations [3]. Pulmonary hypertension and chronic obstructive sleep disorder (COPD) are associated [12,13]. COPD is a major cause of mortality worldwide. Night time hypoxia level increases, characteristic of COPD are precisely measured in all night polysomnograms. In Canada, renewed efforts to enhance follow up of Sleep Apnea patients are under way in response to underestimates of obstructive sleep apnea in hospitalized patients. Parkinson's disease (PD) is estimated to

have a several millions prevalence rate, worldwide. Sleep disturbances including Parasomnias, insomnia and sleep rhythm disorders are prevalent in PK patients. Medication used to melatonin levels are currently under investigation for their therapeutic potential with PD patients. In a large scale study of sleep quality in older adults where an average of four disease processes are present in Taiwan reported approximately 50% of older adults had poor sleep quality [14]. End Stage Renal Disorder (ESRD) is a worldwide health problem requiring expensive hemodialysis treatment [15]. It has been found that sleep disturbances are more common in the dialysis population than the general population [15]. Sleep researchers in Turkey investigated the percent of time patients with metabolic syndrome and obstructive sleep apnea had clinical low oxygen saturation levels [16-19]. The researchers found that the lower levels were reported during sleep. Further, patients studied with obstructive sleep apnea had an increased level of metabolic syndrome.

World of Work and Sleep Issues

Sleep related accidents of police officers in Italy were reported to be related to sleep deprivation [20]. In Japan, shift workers as compared to non-shift workers reported more daytime sleepiness. In Japan, health care workers working the third shift reported significantly more sleepiness than for non-shift workers. With naps, shift workers in an investigation of sleep quality in Singapore had better health care outcomes than those without naps. In an investigation of occupation and sleep quality with non-Hispanic/Caribbean employees, as compared to white workers, experienced more night shift work and job strain, comparably. It is estimated that up to thirty percent of workers worldwide work a shift schedule [21]. Health care programs at the worksite to circumvent the translation of risk factors to symptoms and disease has been reported as an essential element [21].

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Received March 15, 2013; Accepted April 15, 2013; Published April 20, 2013

Citation: Sexton-Radek K (2013) A Look at Worldwide Sleep Disturbance. J Sleep Disorders Ther 2: 115. doi:10.4172/2167-0277.1000115

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Sleep apnea in infants and children is another sleep issue that has reached worldwide concern. A comprehensive review of the literature encompassing data from sixty-four countries has been collected for a database for paediatrician review [22]. The social and medical importance of detecting obstructive sleep apnea in infants and children is essential to their health and maturation. In Taipei, researchers have identified prevalence of asthma among the children of the country using the International Study of Asthma and Allergies in childhood core written questionnaires [23]. The findings from this study indicated an increase in both prevalence and severity of allergic rhinitis and atopic eczema. Nocturnal asthma (NA) is a worldwide problem. Currently, in the pediatric population it is on the rise. The fragmented, in sufficient sleep resulting from frequent NA attacks leave the child with excessive daytime sleepiness. Daytime spirometry measures are not adequate in the measurement of NA. To date, parent training in detection and provision of prescribed medicine has been the suggested intervention used by paediatricians. Some researchers are evaluating an automated wheeze detective device.

In Switzerland, regions of high migrations have been a source of study. In these regions, divergent childhood weight and eating patterns exist as compared to the older sections of the country. An intervention focused on educating and providing physical fitness and course work in good sleep and nutrition behaviours was planned [24,25]. The outcome measures of physical fitness evaluation scores revealed moderate success for these children. In rural China, sleepy drivers have increased the rates of road traffic injuries including road traffic injuries among middle school students [26]. This public health problem, however, is worldwide. Both sleep and careless driving, largely on motorcycles and sleep school-related stress in middle school children have contributed to the identification of these risk factors [26-28].

Co-sleeping results in sleep problems for the child [26-28]. The resultant interrupted sleep and possible awakenings leave the child with daytime excessive sleepiness [29,30].

Insomnia is a worldwide sleep problem affecting millions of people. Though behavioural interventions have been shown to be effective and advantageous over medication, their use worldwide is unknown. Core outcome measures of behavioural interventions for Insomnia such as the Pittsburgh Sleep Quality Index (PSQI) have strong psychometric properties and have been translated in many world languages [31]. Other traditionally used outcome measures include sleep quality (e.g., sleep time, number of awakenings, amount of time awake) [32,33].

In addition to the first line of treatment for insomnia, cognitive behavioral therapy, a myriad of approaches exist with varying levels of effectiveness [34]. Sleep hygiene instructions are common; with this the patient is advised to change sleep environment and lifestyle factors that may perturb their sleep [35-41]. Interventions need to be conducted both individually and at the patient's worksite for night workers. The impact affects the worker and reduces the company productivity [42].

Conclusions – What is Needed to Address Sleep Issues Worldwide

Resources in the medical literature have identified the scope of Sleep Disturbances worldwide. To date, current literature with a global focus to sleep disturbances account for descriptions with some clinical utility. The World Health Organization and the International Classification Diagnostic System-10 represented a reliable means of identification of sleep disturbances although applications to epidemiological studies are necessary to forward understanding beyond this usual accounting.

Some interventions at the individual level are occurring for reported sleep disturbances but uniform application of empirically supported treatments such as Cognitive Behaviour Therapy interventions appears to not be documented. With this identification of prominent sleep issues, this necessary next step can be considered.

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