Sleep Quality: Commonly Impaired, Uncommonly Assessed, Rarely Addressed!

Milind Y Nadkar

“...A good laugh and a long sleep are the best cures in the doctor’s book.” — Irish Proverb.

An average human being spends one-third of his/her life either sleeping or attempting to do so.1 This is nearly double the time that is spent at work in the life span of an individual. Sleep is inextricably linked to quality of life. Despite this sleep is more often than not taken for granted. Most researchers focus on sleep disorders or sleep deficit, the proverbial tip of the iceberg. As pointed out by Buysse, “Sleep health is a term that is infrequently used and even less frequently defined. The health of populations is increasingly defined by positive attributes such as wellness, performance, and adaptation, and not merely by the absence of disease. Sleep health can be defined in such terms.... Although it is important to identify and treat disorders and deficits, sleep health is not simply their absence. Rather, sleep health indicates how well an individual or population is doing.”2 Over the past few years the importance of sleep health is being increasing recognised as evidenced by the number of publications in PubMed (Figure 1).

The lay public’s engagement with sleep is reflected in the incorporation of apps that track sleep in smart phones and a plethora of wearable sleep trackers that monitor sleep in addition to a slew of other variables like pulse, steps walked, etc. Apart from the individual impact, sleep or its lack can have societal impact too. The latter can compromise public safety in occupations such as pilots, truck drivers, air-traffic controllers, etc.

Sleep, like any other biologic process, is multi-dimensional comprising amount, continuity or efficiency, timing, alertness/sleepiness, and quality amongst other variables. Sleep quantity and sleep quality are the two variables often studied. The former lends itself to easy measurement and, hopefully, intervention while sleep quality is more abstract and less amenable to quantification and manipulation. The National Sleep Foundation (NSF), United States has published sleep duration recommendations for 9 age groups:3 14-17 hours for newborns, 12-15 hours for infants, 11-14 hours for toddlers, 10-13 hours for preschoolers, 9-11 hours for school-aged children, and 8-10 hours for teenagers. Seven to 9 hours is recommended for young adults and adults, and 7-8 hours of sleep is recommended for older adults. While it may be argued that not all normal individuals fit into this quantification, nonetheless it is an important attempt to quantify something as diverse as sleep.

Sleep quality on the other hand is more esoteric. The NSF has looked at “quality” as a combination of constituent elements.4 Shorter sleep latencies, fewer awakenings, and reduced wake after sleep onset are considered indicators of good sleep quality, regardless of age. Similarly, higher sleep efficiency indicates good sleep quality across all age groups, and lower sleep efficiency indicates poor sleep.4

A growing body of literature has conclusively shown that sleep is a critical component of health and chronic insufficient sleep is associated with multiple adverse health outcomes like depression, obesity, hypertension, type 2 diabetes mellitus, ischemic heart disease, and all-cause mortality.5,9 The linkage of sleep to many different and seemingly distant organ systems, thus, brings sleep within the ambit of all physicians.

Sleep disorders are not uncommon in India.10 However, there is a paucity of studies dealing with sleep quality. Barriers to sleep research include but are not limited to marginalisation of this discipline in medical school curricula, inadequate physician awareness, limited training opportunities to acquire expertise with sleep problems, failure on part of the patient and health care provider to link the health condition to sleep, societal and cultural influences, low public funding, and paucity of objective measurement tools.
Polysomnography, the current gold standard for quantifying sleep, is most often performed in sleep laboratories, is expensive, not universally available, and hence unsuitable for large scale studies. This brings to the forefront self-report instruments. Sleep data from most studies characteristically involves self-report. Lack of availability of these instruments in different languages poses a practical problem.

The Pittsburgh Sleep Quality Index (PSQI) is a self-report questionnaire widely used all over the world. In use since 1989, the PSQI consists of 19 items that measure several different aspects of sleep, offering seven component scores and one composite score. The component scores consist of subjective sleep quality, sleep latency (i.e., how long it takes to fall asleep), sleep duration, habitual sleep efficiency (i.e., the percentage of time in bed that one is asleep), sleep disturbances, use of sleeping medication, and daytime dysfunction. Each item is weighted on a 0–3 interval scale to yield an overall score ranging from 0 to 21, where lower scores denote a better sleep quality. The best evidence synthesis for the PSQI showed strong reliability and validity, and moderate structural validity in a variety of samples, suggesting the tool fulfils its intended utility. 11

The Eighth Schedule to the Indian Constitution lists 22 scheduled languages, of which Hindi is spoken by more than 40% Indians. The translation and validation of PSQI into Hindi, the most spoken language in India, is a welcome step that is likely to provide a fillip to sleep research in India. Researchers across different specialties can use the validated tool being published in this issue of JAPI. 12 It is also likely to stimulate translation into other Indian languages so that PSQI can be used in non-Hindi speaking areas of our country.

Sleep occupies 20% and 40% of our day. It is only logical that we acknowledge the importance of sleep quality in human health and proactively promote research in this area.

References

2. Buysse DJ. Sleep health: can we define it? Does it matter? Sleep 2014; 37:9-17