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Review Article

Psychiatry/Mental Health Section

Non Pharmacological Management Strategies for Sleep Quality in Adults- A Narrative Review

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ABSTRACT

Sleep problems are prevalent among adults and is a matter of public health concern. They not only impair the quality of life but are associated with various medical and neuropsychiatric consequences. There is a need for increased awareness regarding various treatments available, especially safer options, and more acceptable management options for sleep problems among medical fraternity. The aim of this article was to give a narrative overview of sleep assessment in adults and existing evidence for various non pharmacological management strategies for enhancement of sleep quality. Authors had manual search strategy of PubMed, Google Scholar engines for relevant research publications and reviewed them along with cross references from the retrieved articles. A comprehensive review on the evidence outlines, the effectiveness and usefulness of the non pharmacological management options in sleep problems. This review showed that the cognitive behavioural therapies and mindfulness based therapies are highly effective in enhancing sleep quality. Considering the safety profile of non pharmacological management strategies when compared to commonly prescribed pharmacological agents such as sedative hypnotics, there is a need to improve availability of services for non pharmacological treatment options. This can be achieved by brief systematised training in the psychotherapeutic interventions for sleep to healthcare professionals, which in turn will improve the quality of life of people suffering with sleep problems across medical conditions.

Keywords: Cognitive behavioural therapy, Insomnia, Mindfulness, Psychotherapy, Sleep hygiene

INTRODUCTION

Insomnia is dissatisfaction with either sleep quantity or quality and is associated with one or more of symptoms such as difficulty in initiating or maintaining sleep, with frequent awakenings or problems returning to sleep, and early morning awakening [1]. It is accompanied by clinically significant distress or impairment in social, occupational, or other important areas of functioning. The sleep disturbance may occur during the course of another mental disorder or medical condition, or it may occur independently. Initial insomnia is difficulty in initiating sleep at bedtime, middle insomnia is frequent awakenings throughout the night and late insomnia is early morning awakening along with an inability to return to sleep. The most common presentation is combination of initial and middle insomnia [1].

Sleep disturbances are the most common problem reported in persons with mental health conditions and is a matter of public health concern as it has significant adverse effects on the quality of life of the individual affected [2]. Insomnia symptoms are reported by about one third of adults and 10-15% experiences associated daytime impairments [1]. Insomnia is more prevalent complaint among females than males with ratio of 1.44:1 and around 40 to 50% of individuals with insomnia also present with a co-morbid mental disorder [1]. A 40-70% of elderly experience chronic sleep disturbances [3]. The prevalence of insomnia was found to be 32.6% in a survey conducted in people attending primary care setting from ten countries [4]. A study conducted in India has shown the prevalence of insomnia among adults to be 33% [5]. Studies have shown that due to work absentism, insomnia causes significant economic burden, huge expenses and decreased productivity [6,7]. Among the major road accidents, it was found that sleep related vehicle accidents comprised around 16% as per a study [8]. A recent study has shown that insomnia with co-morbid chronic pain was associated with increased family caregiver burden which was independent of the severity and duration of pain and was related only with sleep disturbance [9]. So, all these studies point that sleep problems affects and impacts the quality of life in various ways and hence, warrants proper management strategies.

Most often pharmacotherapy is considered to be a common modality of treatment for insomnia [10]. However, psychotherapeutic interventions offer advantage of easy acceptability and do not pose the risk of addiction associated with sedative hypnotics, the common agent prescribed for sleep problems [10]. And, also non pharmacological management strategies do not have adverse effects and provide long lasting beneficial effects by causing positive life style changes [10]. To the best of our knowledge, there is a study gap as there is no recent narrative review focusing extensively on the non pharmacological management options. So, in the present paper, authors aimed to present a narrative overview of sleep assessment in adults for various non pharmacological options for sleep improvement.

LITERATURE SEARCH

Manual search was performed by the authors in PubMed, Google Scholar and relevant research publications were reviewed. The search terms used in PubMed were sleep AND psychotherapy, sleep AND psychotherapy AND randomised controlled trial. Identification of relevant articles based on the title and abstract was done by searching the electronic databases followed by retrieval of articles that were published till the year of 2020 based on the clinical relevance. Cross references from the articles were retrieved for relevant articles.

SLEEP QUALITY IN ADULTS

As per Diagnostic and Statistical Manual (DSM) 5 [1], insomnia is a complaint of dissatisfaction with sleep quality or quantity and is associated with difficulties in initiating, maintaining sleep or early morning awakening causing personal distress or socio-occupational impairment. Occurring at least three nights a week for three months despite adequate opportunities for sleep, and not explained by any other substance use or psychiatric or medical conditions [1]. Diagnosis

of insomnia disorder is made whether it occurs as an independent condition or co-morbid with another mental disorder, medical condition or another sleep disorder. In co-morbid insomnia and a mental disorder, treatment may also need to target both the conditions [1].

The 2005 National Institutes of Health Consensus Panel on Manifestations and Management of chronic insomnia in adults noted that while emphasising on the "secondary" nature of insomnia, disorders may lead to inadequate treatment. It is considered that most of chronic insomnia conditions share numerous characteristics, regardless whether "primary" or "co-morbid/secondary" [11,12]. Maladaptive cognitions and behaviours that serves as major perpetuating factors in chronic insomnia disorders [11,12].

Evaluation: A comprehensive evaluation for sleep problems includes a detailed sleep history involving primary insomnia complaint, pre-sleep conditions, sleep-wake schedule, nocturnal symptoms, daytime activities and function along with assessment of associated medical or psychiatric issues [Table/Fig-1] [13].

Systems affected	Conditions associated with sleep disorders
Digestive	Peptic ulcer disease, reflux, cholelithiasis, irritable bowel syndrome, colitis.
Cardiovascular	Dyspnoea, angina, congestive heart failure, dysrhythmias
Endocrine	Hypothyroidism, diabetes mellitus, hyperthyroidism
Neurological	Parkinson disease, stroke, seizure disorders, headache disorders, dementia, traumatic brain injury, chronic pain disorders, neuromuscular disorders, peripheral neuropathy
Pulmonary	Asthma, Chronic obstructive pulmonary disease, emphysema, laryngospasm
Musculoskeletal	Osteoarthritis, rheumatoid arthritis, fibromyalgia, Sjogren syndrome, kyphosis
Sleep disorders	Restless legs syndrome, obstructive sleep apnoea, central sleep apnoea, periodic limb movement disorder, parasomnias, circadian rhythm sleep disorders
Reproductive	Menstrual cycle variations, pregnancy, menopause
Anxiety disorders	Generalised anxiety disorder, panic disorder, post-traumatic stress disorder, obsessive compulsive disorder
Mood disorders	Dysthymia, major depressive disorder, bipolar mood disorder
Psychotic disorders	Schizophrenia, schizoaffective disorder
Disorder seen in childhood and adolescence	Attention deficit disorder
Amnestic disorders	Alzheimer disease, other dementias
Other disorders	Adjustment disorders, stress, personality disorders
Use of medications	Antidepressants, stimulants, decongestants, narcotic analgesics, beta blockers

[Table/Fig-1]: The table summarises various medical and neuropsychiatric conditions that could present with sleep problems [13].

[Table/Fig-2] describes the scales of assessing insomnia by various questionnaires and their scoring criteria.[13-16]. [Table/Fig-3] also depicts the various other tools of assessment with description-Sleep logs, Actigraphy and Polysomnography [17,18].

Scale	Assessment	Total items	Interpretation
Pittsburgh sleep quality index [14]	To measure sleep quality and pattern	24 items Self-report	A global score of greater than five indicates poor sleep
Insomnia severity index [15]	To assess the nature, severity and impact of insomnia	7 items Self-report	Absence of insomnia (0-7) Sub-threshold insomnia (8-14) Moderate insomnia (15-21) Severe insomnia (22-28).
Epworth sleepiness scale [13]	To assess the subjective sleepiness	8 items Self report	Score of less than 10 is normal
Fatigue severity scale [13]	To assess the daytime fatigue	9 items Self-report	Higher the score greater the fatigue severity
Dysfunctional beliefs and attitudes about sleep scale [16]	To assess negative cognitions about sleep	16 items Self-report	Higher scores indicating more dysfunctional beliefs and attitudes
Short form health survey (SF-36) [13]	To measure quality of life	36 items Self-report	Score 0-Poorest Score 100-Wellbeing

[Table/Fig-2]: This table provides an overview of the questionnaires used for assessment for insomnia [13-16].

Tool	Description
Sleep logs (Diary) [17]	To assess Wakefulness After Sleep Onset (WASO), the Total Sleep Time (TST), circadian rhythm disturbances and Sleep Efficiency (SE).
Actigraphy [17]	Non invasive device used to register the motor activity grossly during sleep and the daytime. Total sleep duration WASO, sleep latency and daytime naps are the sleep parameters assessed by actigraphy.
Polysomnography [17,18]	In sleep disorders including sleep apnoea, parasomnias and sleep related hypoventilation polysomnography is preferred for the diagnosis. Not used for initial assessment of insomnia in the absence of suspicion for co-existing sleep disorder.

[Table/Fig-3]: The other assessment tools in insomnia are Sleep logs, Actigraphy and Polysomnography and a brief description is provided in the below table [17,18].

NON PHARMACOLOGICAL MANAGEMENT

Non pharmacological management of sleep disorders, due to various conditions from previous literature are described [Table/Fig-4,5].

Therapies such as Cognitive Behavioural Therapy (CBT) for insomnia, sleep hygiene, relaxation therapy, sleep restriction, stimulus control, brief therapies for insomnia, cognitive therapy, mindfulness therapy, temporal control, biofeedback, paradoxical intention, intensive sleep retraining and light therapy are considered as non pharmacological management options for sleep disturbances [13,19].

Cognitive Behavioural Therapy for Insomnia (CBT-I)

It is a multicomponent therapy including sessions such as sleep education, Sleep Restriction Therapy (SRT), relaxation therapy, stimulus control therapy, cognitive and behavioural therapy and delivered in four to eight sessions over a period of six to eight weeks and can be given in group sessions also and is found to improve chronic insomnia and daytime functioning for around two years [13,19-22]. In cognitive therapy, misconceptions about causes of sleep disturbances, amplification and misattribution of consequences, sleep expectations that are unreal, performance anxiety and learned helplessness, faulty beliefs about sleep promoting practices are challenged [23]. The therapy can be delivered through tele modality such as video conferencing for people hesitating or having difficulty to visit a therapist and Sleep Ninja is a smartphone app delivering CBT-I through phone however, the limitation of CBT-I program is shortage of efficient therapists and limited financial support [19,22,24].

Sleep Hygiene

It is a single component therapy and considered as an initial intervention to alter the environmental factors, personal habits having a negative impact on sleep and recommendations includes lifestyle modifications such as regular exercise, management of stress, regularity in sleep timing, noise reduction, avoidance of day time napping, avoid use of nicotine, caffeine and alcohol while in the evening and late night [19,25,26]. Information about normal sleep and sleep changes with ageing can also be explained to the patient [27].

Stimulus Control

It is a single component therapy aiming to extinguish the association between the bed or bedroom, wakefulness and to re-establish the association of bed or bedroom with sleep and maintain a consistent sleep wake schedule [19]. Instructions given in the therapy are to lie down on bed only when sleepy, get out of bed when unable to sleep, use the bed or bedroom for sleep and sex only and not to engage in activities such as reading and watching TV while on bed, wake up at the same time every morning and to avoid daytime napping [19].

References	Study type and interventions	Objective and study population	Findings
Hauri P [43] 1981	Clinical trial New Hampshire Electromyographic feedback, combined Electromyographic and theta feedback, sensorimotor rhythm feedback.	Evaluation of three biofeedback modalities for treating psychophysiologic insomnia. 48 patients with insomnia	Appropriate feedback methods were found to be effective for specific types of insomnia.
Shapiro SL et al., [33] 2003	Exploratory study Bethesda MBSR	To assess the effects of MBSR on the sleep complaints of women with breast cancer. 63 women	Demonstrated that MBSR appears to be a promising intervention in improving the sleep quality in women with breast cancer.
Jacobs GD et al., [44] 2004	Randomised controlled trial United States CBT, Pharmacotherapy, Combination therapy	To evaluate the efficacy of behavioural and pharmacological therapy, singly and in combination for chronic sleep onset insomnia. 63 adults	Findings suggested significantly greater benefits from CBT than pharmacotherapy.
Germain A et al., [45] 2006	Randomised controlled trial USA Brief Behavioural Treatment for Insomnia (BBT-I)	To assess the effects of BBTI in older adults with insomnia with typical psychiatric and medical co-morbidities of aging. 35 older adults	Significant improvement in sleep measures and day time anxiety and depression was associated with BBTI.
Ong JC et al., [34] 2008	Treatment Development Study California Multicomponent group intervention using mindfulness meditation, sleep restriction, stimulus control, sleep education and sleep hygiene	To evaluate an intervention that combines mindfulness meditation with Cognitive Behaviour Therapy for Insomnia (CBT-I). 30 adults who met diagnostic criteria for psychophysiological insomnia	Findings indicate that mindfulness meditation can be combined with CBT-I and this integrated intervention is associated with reductions in both sleep and sleep-related arousal.
Yook K et al., [46] 2008	Clinical trial Korea MBCT	To examine the usefulness of MBCT for treating insomnia symptoms in anxiety disorder patients. 19 patients with anxiety disorder	Findings suggested that MBCT can be effective at relieving insomnia symptoms by reducing worry associated sleep disturbances in anxiety disorder patients.
Ong JC et al., [35] 2009	Follow-up California Earlier given combined intervention of mindfulness meditation with CBT-I	To examine the long term effects of the integrated intervention on measures of sleep and sleep related distress. 21 participants	Sleep-related benefits of an intervention combining CBT-I and mindfulness meditation were maintained during the 12-month follow-up period.
Jungquist CR et al., [47] 2010	Randomised controlled trial USA CBT-I	To assess the efficacy of CBT-I in patients with non malignant chronic pain. 28 participants	CBT-I group showed significant improvements in sleep.
Chen PH et al., [48] 2010	Clinical trial Taiwan Sleep hygiene	To investigate the efficacy of short term sleep hygiene education on working woman with poor sleep quality. 37 working women	Significant improvement in sleep quality with sleep hygiene education.
Gross CR et al., [49] 2011	Randomised controlled trial United States MBSR, Pharmacotherapy with eszopiclone	To investigate the potential of Mindfulness based stress reduction as a treatment for chronic primary insomnia. 30 adults with primary chronic insomnia	Significant improvement in MBSR arm were found on the ISI, PSQI and diary measured sleep time, sleep onset latency and Sleep Efficiency (SE) from baseline to five month follow up.
Harris J et al., [50] 2012	Randomised controlled trial South Australia Intensive sleep retraining (ISR), Stimulus Control Therapy (SCT), ISR plus SCT, Control (Sleep hygiene)	To investigate the effectiveness of intensive sleep retraining in comparison and combination with traditional behavioural intervention for chronic primary insomnia. 79 volunteers	Findings suggested that adding ISR to traditional interventions seems to lead to a superior treatment response.
Andersen SR et al., [51] 2013	Randomised trial Denmark MBSR	To assess the sleep quality among breast cancer patients at baseline, after the intervention, at 6 and 12 months follow-up. 336 women operated on for breast cancer	MBSR had a statistically significant effect on sleep quality immediately after the intervention but no long-term effect among breast cancer patients.
Saeedi M et al., [52] 2014	Randomised controlled trial Iran Sleep hygiene	To determine the effect of sleep hygiene on the sleep quality of haemodialysis patients. 82 patients	The mean global score of sleep quality was significantly reduced in the sleep hygiene group compared to the control group.
Garland SN et al., [53] 2014	Randomised, partially blinded, non inferiority trial Canada CBT-I, MBSR	To assess whether MBSR is non inferior to CBT-I. 111 participants	MBSR produced a clinically significant change in sleep and psychological outcomes, CBT-I was considered as the best choice for the non pharmacological treatment of insomnia as it was associated with rapid and durable improvement.
Martínez MP et al., [54] 2014	Randomised controlled trial Spain CBT-I, SH	To analyse the efficacy of a Cognitive Behavioural Therapy for Insomnia (CBT-I) versus a sleep hygiene (SH) education program at improving sleep and other clinical manifestations in Fibromyalgia. 64 participants	CBT-I group showed significant improvements in several sleep variables, fatigue, daily functioning, pain catastrophising, anxiety and depression compared to SH group.
Ong JC et al., [2] 2014	Randomised controlled trial United States. Mindfulness based Stress Reduction (MBSR), Mindfulness Based Therapy for Insomnia (MBTI), Self-monitoring	To evaluate the efficacy of mindfulness meditation for the treatment of chronic insomnia. 54 adults with chronic insomnia	Remission and response rates in MBSR and MBT-I were sustained after post-treatment follow up, with MBT-I showing higher rates of treatment remission (50%) and response (78.6%) at six month follow-up.
Black DS et al., [55] 2015	Randomised clinical trial Los Angeles Mindful Awareness Practices (MAPs), Sleep Hygiene Education (SHE)	To determine the efficacy of mind body medicine intervention to promote sleep quality. 49 older adults with moderate sleep disturbances	MAPs group showed significant improvement relative to those in the SHE group on the PSQI. MAPs group showed significant improvement relative to the SHE group on secondary health outcomes of insomnia symptoms, depression symptoms, fatigue interference and fatigue severity.
Zhang JX et al., [56] 2015	Randomised controlled trial China MBSR	To assess the effectiveness of MBSR for chronic insomnia. 60 adults aged 75 years and over	Suggested that MBSR could be beneficial treatment for chronic insomnia in adults 75 years and older.
Wang J et al., [57] 2016	Randomised controlled trial China BBTI, Sleep Hygiene (SH)	To evaluate the efficacy of BBTI for insomnia in patients with treatment resistant insomnia. 79 adults with treatment resistant insomnia	Suggested BBTI to be a simple and efficacious intervention for chronic insomnia.

Videnovic A et al., [58] 2017	Randomised controlled trial United States Light therapy	To determine the efficacy of light therapy on excessive daytime sleepiness associated with Parkinson Disease. 31 participants	Light therapy was found to be well tolerated and may be considered as a feasible intervention to improve sleep wake cycle in patients with Parkinson disease.
Kalmbach DA et al., [59] 2019	Randomised controlled trial United States Sleep hygiene education, Sleep Restriction Therapy (SRT), CBT-I	To assess whether CBT-I improves depressive symptoms, maladaptive thinking, and somatic hyperarousal in postmenopausal women with insomnia, and whether Sleep Restriction Therapy (SRT)-a single component of CBT-I is equally efficacious. 117 postmenopausal women	CBT-I and SRT reduced depressive symptoms, dysfunctional beliefs about sleep, and pre sleep somatic hyperarousal in postmenopausal women, with CBT-I producing superior results.

[Table/Fig-4]: This table provides an overview of various randomised controlled trials, treatment development and follow up studies and their findings on non pharmacological management of sleep disturbances [Table/Fig-4] [2,33-35,43-59].
MBSR: Mindfulness based stress reduction; CBT: Cognitive behavioural therapy; BBTI: Brief behavioural treatment for insomnia, CBT-I: Cognitive behavioural therapy for insomnia, MBCT: Mindfulness based cognitive therapy; SH: Sleep hygiene; SRT: Sleep restriction therapy; ISI: Insomnia severity index; PSQI: Pittsburgh sleep quality index; ISR: Intensive sleep retraining; MAP: Mindfulness awareness practices; SHE: Sleep hygiene education; USA: United States of America

References	Study type	Objectives	Findings
Wang MY et al., [60] 2005	Systematic review Database from 1993 to 2004	To evaluate the efficacy of Cognitive Behavioural Therapy (CBT) for persistent primary insomnia	CBT was found to be superior to any single component therapy such as relaxation training, stimulus control, educational programmes or other control conditions.
Winbush NY et al., [61] 2007	Systematic review seven articles were included in the review	To evaluate the evidence that sleep can be improved by mindfulness based stress reduction	Few studies showed that MBSR significantly improved measures of sleep quality or duration whereas the remaining studies found no statistically significant difference between treatment and control groups.
Cheng SK and Dizon J [62] 2012	Meta analysis Database up to March 2011	To evaluate the effectiveness of computerised Cognitive Behavioural Therapy (CBT) for insomnia	Computerised Cognitive Behavioural Therapy (CBT) was found to be mildly to moderately effective self-help therapy for insomnia in a short term.
Koffel EA et al., [63] 2015	Meta analysis Database up to May 2013	To review Randomised controlled trials comparing group CBT-I to control group in patients with insomnia	Group Cognitive Behavioural Therapy for Insomnia (CBT-I) was found to be an efficacious treatment.
Trauer JM et al., [20] 2015	Systematic review and meta-analysis Database up to March 2015	To determine the efficacy of CBT-I on diary measures of overnight sleep in adults with chronic insomnia.	Cognitive Behavioural Therapy for Insomnia (CBT-I) was found to be effective treatment for adults with chronic insomnia

[Table/Fig-5]: Systematic review/meta-analysis findings of studies related to non pharmacological management of sleep disturbances are listed below [20,60-63].
CBT: Cognitive behavioural therapy; CBT-I: Cognitive behavioural therapy for insomnia; MBSR: Mindfulness based stress reduction

Sleep Restriction Therapy (SRT)

It is a single component therapy and is beneficial in patients trying to fall asleep by spending more time in bed [19]. Therapy is designed to enhance the sleep drive by limiting the time in bed equal to the sleep duration of patient which might result in consolidated sleep and the bed time is limited initially to the average sleep duration and gradually increased or decreased based on Sleep Efficiency (SE) thresholds, until sufficient sleep duration and overall sleep satisfaction is achieved but the therapy can also lead to excessive daytime sleep [13,25,28].

Relaxation Therapy

It is a single component therapy in which exercises such as progressive muscle relaxation, abdominal breathing and autogenic training are aimed to reduce the somatic tension and modalities such as meditation and guided imagery training are aimed to reduce cognitive arousal at bed time, as somatic and cognitive arousal may cause sleep problems to perpetuate [19]. Autogenic training involves induction of warmth and heaviness sensation to promote relaxation of somatic tension and imagery training includes use of pleasant imagery to improve sleep [3].

Brief Therapies for Insomnia

It is a multicomponent therapy and is an abbreviated version of CBT for insomnia emphasising the behavioural components and usually consists of one to four sessions [19]. Brief therapies for insomnia emphasise educating about factors influencing sleep, sleep regulation, and behaviours interfering or promoting the sleep and a tailored behavioural schedule is made based on stimulus control and SRT from the information obtained from pre-treatment sleep diary [19].

Cognitive Therapy

It is a single component therapy aimed at challenging and replacing the misconceptions and faulty beliefs such as over estimation and apprehension about sleep [13,19,25,29,30]. The important targets are misconceptions about causes of sleep disturbances, amplification and misattribution of consequences, sleep expectations that are unreal, performance anxiety and learned helplessness, faulty beliefs about sleep promoting practices [23]. Structured psychoeducation and maintenance of thought record is done in cognitive therapy [19].

Mindfulness Therapy

It is either a multicomponent or single component therapy emphasising on complete awareness of one's emotions, thoughts, or experiences on every single moment [19]. Mindfulness-Based Stress Reduction (MBSR) is a program that delivers mindfulness meditation using a structured group and has shown to have several health benefits in various stress-related conditions including sleep disturbance and has gained popularity [2,31-33]. Mindfulness-Based Therapy for Insomnia (MBT-I) is a meditation-based program integrated with behavioural techniques for insomnia and the basis is to improve sleep and daytime functioning by reducing hyperarousal during the course of insomnia [2,34-39].

Temporal Control Therapy

Aim is to restore the sleep wake cycle and the client is instructed to arise at the same time everyday and avoid daytime naps, regardless of the amount of total sleep everyday [13,25,29,30].

Biofeedback

It is a single component therapy aimed to reduce somatic arousal and visual or auditory feedback is used to control the physiologic variable [13,19]. Muscle tension can be measured by continuous monitoring of frontalis electromyography and auditory feedback tone is altered to desired manner such as to reduce the muscle tone by producing auditory tone from biofeedback device that helps the patient to relax [19].

Paradoxical Intention

It is a single component therapy and the objective is to eliminate anxiety of the patient related to the sleep performance [19]. Instruction

is given to the patient to stay awake after going to bed as long as possible which makes the patient to engage purposefully in the activity causing fear such as remaining awake might lead to decrease in performance anxiety and conscious intent to fall asleep [19].

Intensive Sleep Retraining

It is a single component therapy aimed to improve the homeostatic sleep drive and focusses to decrease the misperception about sleep and difficulties in sleep onset [19]. A 24-hour laboratory protocol is used in which the patient is provided with an opportunity to fall asleep every 30 minutes in sleep conductive conditions and the patient is awakened after three minutes if sleep occurs following which has to remain awake till the subsequent 30 minute trial and the patient is provided with feedback about the sleep [19].

Light Therapy

Certain wavelengths of ocular light exposure is known to stimulate circadian, neurobehavioral and neuroendocrine responses and studies shows improvements in mood and level of alertness on exposure to blue or blue-enriched light along with that improvement in sleep efficacy, increase in sleep time, and reduced nocturnal awakenings are also noted [40-42].

CONCLUSION(S)

The high prevalence of sleep problems is a matter of concern to the medical fraternity. The commonly used pharmacological agents for sleep enhancement pose risk of addiction, cognitive decline, osteoporosis and many more. The review of evidence for non pharmacological strategies in existing literature clearly points the effectiveness of many strategies in enhancing sleep quality. However, majority of them are done for a specific medical/psychiatric condition and have investigated short term effectiveness. In spite of available evidence for these psychotherapeutic interventions, there is a huge dependence on pharmacological agents across medical specialities for sleep improvement. Enhancing training opportunities on brief systematised interventions for healthcare professionals would empower them better to handle sleep problems in a safe and effective manner.

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