

Effectiveness of heartfulness meditation on sleep quality and quality of life in patients with type 2 diabetes

Abstract

The present study was undertaken to observe the effect of heartfulness meditation on sleep quality and quality of life in patients with Type 2 Diabetes. A total of 40 participants with type 2 diabetes aged between 35-55 years, both the genders were included in the study after obtaining the written informed consent. There was a significant decrease in the scores of PSQI that indicates improvement in the sleep quality. There was a significant decrease in the scores of ESS that indicates decrease in day time sleepiness. The four domains of the quality of life that is physical health domain, psychological domain, social relationships and environmental domains were significantly increased followed by the intervention. There was a significant improvement in the sleep quality and overall quality of life followed by practicing the heartfulness meditation. Regular practice of heartfulness meditation is beneficial in general.

Keywords: heartfulness meditation, sleep, quality of life

Volume 7 Issue 1 - 2020

Sai Sailesh Kumar G,¹ Padmanabha BV,²
Srilatha B,³ Mukkadan JK⁴

¹Department of Physiology, RD Gardi Medical College, India

²Department of Physiology, Northern Border University,
Kingdom of Saudi Arabia

³Department of Biochemistry, RD Gardi Medical College, India

⁴Department of Research, Little Flower Medical Research
Centre, India

Correspondence: Sai Sailesh Kumar G, Assistant Professor,
Department of Physiology, RD Gardi Medical College, Agar
Road, Ujjain, Madhya Pradesh, India,
Email dr.saisailsh@gmail.com

Received: October 26, 2020 | **Published:** February 06, 2020

Introduction

According to World Health Organization, three hundred and eighty two million people were affected by diabetes globally and ninety five percentages of them are type-2 diabetes.¹ It was estimated that by 2035 approximately 592 million people will be affected by diabetes.² Sleep disorders are reported as a novel risk factor for the development of diabetes.³ Lack of sleep increases the severity of diabetes through endocrine metabolic pathway. Decrease in either the quality or quantity of sleep decreases the sensitivity of the body to insulin and aggravates the complications of diabetes.⁴ Therefore, sound sleep is required in the management of diabetes. Pharmacological management of sleep is associated with side effects. So, non-pharmacological approaches might be beneficial in improving the sleep with minimum or no side effects. Meditation is a powerful tool to improve well-being and to remove negative emotional states like depression, anxiety and stress.⁵ Heartfulness meditation is a heart-based meditation technique which balances the state of mind.⁶ The heartfulness meditation offers relaxation and may improve the quantity and quality of sleep. The beneficial effects of meditation are due to the relaxation effect it offered and modulation of cognitive, behavioral and emotional aspects of an individual.⁷ The present study was undertaken to observe the effect of heartfulness meditation on sleep quality and quality of life in patients with Type 2 Diabetes.

Methodology

Study design

The present study was an experimental study. The study was conducted at Heartfulness Meditation and consciousness living Centre, North Zone, Trivandrum, Kerala, India. A total of 40 participants with type 2 diabetes aged between 35-55 years, both the genders were included in the study after obtaining the written informed consent. The following is the inclusion and exclusion criteria.

Inclusion & exclusion criteria

Male and female with controlled type 2 diabetes mellitus, minimum duration of diabetes is 5 years, willing to participate in the study, with no other severe complications, no other endocrinal disorders were included in the study. Alcoholics, smokers, pregnant women, those with acute macro vascular complications, renal or liver disorders, cancer, were excluded from the study. All the participants were selected from the same locality, to minimize the effects of cultural status like life style and eating habits etc. Participants acted as self-controls.

Heartfulness meditation was performed under the guidance of a trainer. It is conducted in four phases. Heartfulness meditation was performed for 5 days in a week for three months.

Phase-1: Create environment. This is the initial phase of heartfulness meditation, where the participants will enter the meditation room which is a zone of comfort. To avoid the deviations, the electrical gadgets (like mobiles, video games etc) will be turned off.

Phase-2: Relaxation. The participant will choose a comfortable sitting posture and should be relaxed. For the relaxation, soothing music will be switched on. This specific music is provided by heartfulness meditation center.

Phase-3: Meditation. In this phase, the participant will move into an imaginary phase, following the instructions of the mentor. For instance, participant should feel that divine Light is illuminating your heart from within. The participants should keep his attention on the heart irrespective of the wandering thoughts. The meditation is to be performed for thirty minutes.

Phase 4: Documentation. At the end of the meditation phase, the participants are instructed to document their experiences felt in each session.

Outcome measures

The Pittsburgh sleep quality index (PSQI): The Pittsburgh Sleep Quality Index (PSQI) is a standard questionnaire used to assess sleep quality and quantity for the last month. It consists of 19 self-rated questions to assess seven components of sleep (sleep quality, sleep latency, sleep duration, habitual sleep efficiency and sleep disorders, use of sleep medications, daily sleep disturbance, daily sleep duration) and 5 questions to be rated by roommate or bed partner. The self-rated questions only considered for scoring. Each component score ranges from 0 (no difficulty in sleep) to 3 (severe difficulty) and scores of the seven components has to be added to obtain the global score which ranges from 0 (better) to 21 (worse). The global score of ≤ 5 indicates good sleep quality.⁸

The Epworth sleepiness scale: The Epworth Sleepiness scale (ESS) is a self-administered questionnaire that consists of eight questions to assess the daytime sleepiness. The participants were asked to respond on a four point Likert scale ranges from 0 (would never doze) to 3 (high chance of dozing). The ESS score ranges from 0-24. Higher ESS scores indicate higher daytime sleepiness.⁹

WHO-QOL BREF: WHO-QOL BREF is a self-administered questionnaire which consists of 26 questions to assess four domains physical health, psychological status, social relationships and

environment (The WHOQOL, 1995). The participants were requested to assess their quality of life last two weeks on a five-point Likert scale. Raw scores of each domain were calculated by using the formulas provided along with the questionnaire. Raw scores were converted into transformed scores between 0-100 ranges by using the templates provided along with the questionnaire. Higher scores indicate higher quality of life.¹¹

Power analysis and sample size estimation: The study was powered at 0.90, considering the intra group variation of 20-25%. The required sample size was 40. Sigmaplot 13.0 (Sysstat Software USA) was used to calculate the sample size. Data was analyzed using SPSS 20.0 version. Student t test was applied to observe the significance of difference between the pre and post values. The data is presented as Mean \pm SD.

Results

Results were presented in Table 1. There was a significant decrease in the scores of PSQI that indicates improvement in the sleep quality. There was a significant decrease in the scores of ESS that indicates decrease in day time sleepiness. The four domains of the quality of life that is physical health domain, psychological domain, social relationships and environmental domains were significantly increased followed by the intervention.

Table 1 Estimation of Pittsburgh sleep quality index & Epworth sleepiness scale in different parameters

Parameter	Pre-intervention (n=40)	Post intervention (n=40)	P value
PSQI	9 \pm 1.44	7.33 \pm 0.74	<0.0001***
Epworth Sleepiness score	14.33 \pm 2.88	8.32 \pm 3.7	<0.0001***
Physical health domain	54.2 \pm 8.55	66.12 \pm 5.9	<0.0001***
Psychological domain	62.78 \pm 7.32	68.44 \pm 5.98	0.0003***
Social relationships	58.42 \pm 7.92	66.88 \pm 6.32	0.0001***
Environmental	62.11 \pm 4.36	69.88 \pm 5.32	<0.0001***

*P<0.05 is significant, **P<0.01 is significant, ***P<0.001 is significant

Discussion

Sleep problems are common in diabetic participants.¹ Both short and long duration of sleep was associated with development of diabetes. The poor sleep quality interferes with metabolic homeostasis and causes further complications.² Sakamoto R et al.³ reported that poor subjective sleep quality was observed in the patients with type 2 diabetes. Further there was GIT hormonal imbalance in the individuals with insomnia. The hunger stimulating hormones called Ghrelin levels are increased and leptin which stimulates satiety center was decreased in the sleep deprived individuals.⁸ In fact, one-week sleep deprivation causes pre-diabetic state.⁹ Bani-Issa W et al. suggested that the sleep quality must be assessed as a part of regular clinical practice in diabetic population. As poor quality of sleep deteriorates the quality of life of these patients, sleep optimization may improve the glucose tolerance and eventually the quality of life. Sleep disturbances are the most common problem experienced by individuals with diabetes. This lack of sleep increases stress and excessive stress will further impair the sleep quality and quantity and may lead to further complications. Sleep disorders aggravates diabetes through insulin resistance syndrome. Hence, it is very essential to improve sleep quality and

quantity in diabetes population. As the disturbed sleep is of serious concern, which meet the attention by the researcher. Hence, the present study is taken up. Mindfulness meditation helps an individual to live a heart-centered life. It was reported that the mindfulness meditation can be used for the management of chronic insomnia.¹⁰ Mindfulness meditation trains an individual to avoid unnecessary thoughts and brings a person to a balanced state. Individuals who practices the mindfulness meditation remains in the meditative state throughout the day and remains in stress free state.¹¹ Practicing meditation before sleep removes all thoughts and keeps mind calm and leads to sound sleep.¹² Mindfulness meditation offers relaxation as all the thoughts were ignored and concentrated fully the heart. Those who practice the meditation, sleep latency will decrease and also leads to undisturbed sleep.¹³ The relaxation effects of the meditation decreases stress levels.

Conclusion

There was a significant improvement in the sleep quality and overall quality of life followed by practicing the mindfulness meditation. Regular practice of mindfulness meditation is beneficial in general.

Acknowledgments

None.

Conflicts of interest

The authors declare there are no conflicts of interest.

Funding

Self-funding.

References

1. World Health Organization. Diabetes Fact sheet No. 312. 2015.
2. Shaw JE, Punjabi NM, Wilding JP, et al. Sleep-disordered breathing and type 2 diabetes: a report from the International diabetes federation taskforce on epidemiology and prevention. *Diabetes Res Clin Pract.* 2008;81(1):2–12.
3. Barone MT, Menna-Barreto L. Diabetes and sleep: a complex cause-and-effect relationship. *Diabetes Res Clin Pract.* 2011;91(2):129–137.
4. Van Cauter E, Spiegel K, Tasali E, et al. Metabolic consequences of sleep and sleep loss. *Sleep Med.* 2008;9(1):S23–S28.
5. Tarantino B, Earley M, Audia D, et al. Qualitative and quantitative evaluation of a pilot integrative coping and resiliency program for healthcare professionals. *Explore (NY).* 2013;9(1):44–47.
6. Thimmapuram J, Pargament R, Sibliss K, et al. Effect of heartfulness meditation on burnout, emotional wellness, and telomere length in health care professionals. *J Community Hosp Intern Med Perspect.* 2017;7(1):21–27.
7. Amarnath, R, Verma G, Jenitha S, et al. Improving sleep quality through heartfulness meditation-technical aspects and benefits. *IJHSR.* 2017;7(5):368–381.
8. Taheri S, Lin L, Austin D, et al. Short sleep duration is associated with reduced leptin, elevated ghrelin, and increased body mass index. *PLoS Med.* 2004;1(3):e62.
9. Van Cauter E, Polonsky KS, Scheen AJ. Roles of circadian rhythmicity and sleep in human glucose regulation. *Endocr Rev.* 1997;18(5):716–738.
10. Yommer D, Thimmapuram J, Tudor L. 0385 Heartfulness meditation: an effective treatment option for chronic insomnia. *Sleep.* 2018;41(1):A147.
11. Garland EL, Fredrickson B, Kring AM, et al. Upward spirals of positive emotions counter downward spirals of negativity: Insights from the broaden-and-build theory and affective neuroscience on the treatment of emotion dysfunctions and deficits in psychopathology. *Clin Psychol Rev.* 2010;30(7):849–864.
12. Vago DR, Silbersweig DA. Self-awareness, self-regulation, and self-transcendence (S-ART): a framework for understanding the neurobiological mechanisms of mindfulness. *Front Hum Neurosci.* 2012;6:296.
13. Ram Chandra. Meditation. Complete works of Ramchandra Volume VI. 2016.