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

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. It was estimated that by 2035 approximately 592 million people will be affected by diabetes. Sleep disorders are reported as a novel risk factor for the development of diabetes. 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. 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. Heartfulness meditation is a heart-based meditation technique which balances the state of mind.

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 lifestyle 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.
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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.1

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.6

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. Signamaplot 13.0 (Syststat 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±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±1.44                  | 7.33±0.74                | <0.0001***|
| Epworth Sleepiness score | 14±3.2±2.88             | 8.32±3.7                | <0.0001***|
| Physical health domain   | 54.2±8.55               | 66.12±5.9               | <0.0001***|
| Psychological domain     | 62.78±7.32              | 68.44±5.98              | 0.0003***  |
| Social relationships     | 58.42±7.92              | 66.88±6.32              | 0.0001***  |
| Environmental            | 62.11±4.36              | 69.88±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.1 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.3 In fact, one-week sleep deprivation causes pre-diabetic state.4 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 important 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. Heartfulness meditation helps an individual to live a heart-centered life. It was reported that the heartfulness meditation can be used for the management of chronic insomnia.10 Heartfulness meditation trains an individual to avoid unnecessary thoughts and brings a person to a balanced state. Individuals who practices the heartfulness meditation remains in the meditative state throughout the day and remains in stress free state.13 Practicing meditation before sleep removes all thoughts and keeps mind calm and leads to sound sleep.12 Heartfulness 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.17 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 heartfulness meditation. Regular practice of heartfulness meditation is beneficial in general.
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Conflicts of interest
The authors declare there are no conflicts of interest.

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