Research Article

Effect of modulation of environment of learning by 'Mantra-Meditation' in MBBS students

Santosh C Gursale[1*], Mohankrishna Ghanta[2]

[1]Professor and HOD, [2]Tutor, Department of Pharmacology, I. M. S. R. Mayani, Satara, Maharashtra, INDIA.
Email: drsantoshgursale@gmail.com

Abstract

Introduction: Learning is a multidimensional and dynamic process requiring a stress free and relaxed environment. There is some evidence in literature that meditation could positively influence memory and help medical students in reducing stress. Chanting of mantra is basically mind oriented with minimum body activity involvement, passive method of meditation **Aims**: At the end of 'Mantra-Meditation' technique, for three lectures, to assess the effect of 'Mantra Meditation', just prior to a learning session, on the students' concentration towards lecture, academic performance, relaxation of mind and pulse rate. **Material and Methods**: Institutional Ethical Committee approval was taken. 69 students were included in the study, after taking their written informed consent. Test group- 34 Students were asked to chant mantra (Mantra-Meditation) for 8 min. at the start of the lecture, then lecture was delivered. Control group- Without Mantra-Meditation, same lecture was delivered to 35 students. Evaluation was done after three lectures by i) Students' feedback questionnaire- ii) Multiple choice question test- was carried out before and after third lecture in both groups . iii) Discussion with students iv) 'Pulse rate per minute' of each student was recorded, before and after entire session. **Statistical analysis used:** Analysis of the difference in the performance in MCQ tests between two groups was done using independent samples t test. The change in pulse rate was analysed using paired t test. **Results:** In MCQ tests, difference in students' post MCQ test scores between control and test group was not statistically significant. But pre MCQ test score of meditation group was significantly better than control group. Significant number of students of mantra meditation group reported to be more attentive, relaxed, increase in concentration towards lecture, reduction in thoughts and in wandering of mind. There was significant reduction in mean pulse rate in mantra meditation group. **Conclusions**: This simple and easy mantra meditation could be adopted to enhance student learning.

Keywords: Mantra meditation, learning, meditation.

[*]**Address for Correspondence:**
Dr. Santosh C. Gursale, Professor and HOD, Department of Pharmacology, I. M. S. R. Mayani, Satara, Maharashtra, INDIA.
Email: drsantoshgursale@gmail.com

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INTRODUCTION

Learning is a multidimensional and dynamic process requiring a stress free, and relaxed environment. Flooding of mind with unnecessary thoughts which causes hindrance to learning process should be eliminated. Students' attention and interest need to be at the maximum level to make optimum use of his learning pot. Body-mind techniques, relaxation techniques and methods of meditation have been found to reduce stress and anxiety, improve attention span, memory and cognitive functions.[1-11] Meditation has been utilized for improvement of health and well-being although the effects have been found to be inconsistent.[12] There is some evidence accumulating in literature that meditation could positively influence memory and help medical students in reducing stress.[13] Manocha[14] described meditation as a discrete and well defined experience of a state of "thoughtless awareness" or mental silence, in which the activity of the mind is minimized without reducing the level of alertness. Chanting of mantra is basically mind oriented with minimum body activity involvement, passive method of meditation.[15]

Overall Goal: To improve concentration of students towards teaching by reducing flooding of thoughts, wandering of mind, increasing attention span, making students stress free, leading to better understanding of topic.

Specific Objectives: At the end of 'Mantra-Meditation' technique, for three lectures, to assess the effect of 'Mantra Meditation', just prior to a learning session, on the students' concentration towards lecture, academic performance, relaxation of mind and pulse rate.

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MATERIALS AND METHODS

Institutional Ethics committee approval was taken for our study. This study was conducted in second year M.B.B.S**.** students in department of Pharmacology. Total sixty nine students were included in the study after obtaining written informed consent for participation**. S**tudents were divided in two groups randomly.

First group: Students were asked to chant mantra (Mantra-Meditation) for eight min. at the start of the lecture, then lecture on antihypertensives was delivered. Pulse rate of each student was measured before mantra meditation and after lecture by students.

Second group: Without Mantra-Meditation, same lecture (topic) was delivered. Pulse rate of each student was measured before and after lecture. This pattern was followed for three lectures for the same batch students. MCQ test was carried out before and after lecture in both groups in third lecture.

Details of Meditation Technique: Students of test group were asked to sit comfortably with back straight. With eyes closed , they were asked to chant mantra of GOD they believe most(so there was no religion bar) with volume intensity that they themselves should be able to hear. They were told that, those who agreed, could chant "Hare Krishna" Mahamantra for eight minutes. After eight minutes they were asked to open their eyes. Then lecture on' antihypertensives' was delivered.

Evaluation Plan: Evaluation was done after three lectures by i) **Students' feedback by questionnaire:** to assess increase in concentration, decrease in flooding of thoughts and wandering of mind, increase in attention span, and relaxation of test group students with likert type responses. ii) **MCQ (multiple choice question) test**: Assessment of improvement in student's knowledge, understanding of the topic, recall memory, receptivity of students about lecture was done for both groups by MCQ test consisting often MCQs, one mark each for correct answer. The same test was administered twice before lecture and after lecture in both groups. iii) **Discussion with students:** Regarding overall opinion about mantra meditation for concentration, relaxation, inhibition for chanting, reduction in flooding of thoughts, reduction in wandering of mind , other suggestions etc. in test group students. iv) We also asked the students in both groups to record their 'pulse rate per minute' before and after entire session.

Statistical Analysis

Analysis of the difference in the performance in MCQ tests between two groups was done using independent samples t test. The change in pulse rate before and after the session for each group was analysed using paired t test. p- value of <0.05 was deemed to be statistically significant.

RESULTS

Academic performance: Comparison by MCQ test

Table 1

Group		Number of students	Mean	SD	Paired t test
Control group	Pre test scores	35	3.37	1.33	Significant p<0.0001
	Post test scores	35	8.74	0.74	
Test group	Pre test scores	34	4.44	1.46	Significant p<0.0001
	Post test scores	34	8.71	0.84	

There was significant improvement in post MCQ test score as compared to pre MCQ test score in both control and test (meditation) groups.

Table 2

Group	Number of students	Mean	SD	Independent Samples T Test
Pre test scores of control group	35	3.37	1.33	Significant P=0.0022141
Pre test score of test (meditation) group	34	4.44	1.46	
Post test scores of control group	35	8.74	0.74	Not significant
Post test score of test (meditation) group	34	8.71	0.84	P=0.846347

There was significant difference in pre test scores of control and test group. Pretest score of test (meditation) group was significantly more than control group may be due to better clear, quiet mind as pre test was conducted after mantra meditation. But there was no significant difference in post test scores of control and test group.

Pulse rate

Students of test group (mantra meditation) had mean pulse rate of 76.03$\pm$6.69 at beginning of lecture which reduced to 72$\pm$4.96at the end of class (Table no.3). The difference was statistically significant when compared with t-test ($p<0.0001$). In students of control group (without mantra meditation) the mean pulse rate before the class was 78.97$\pm$7.34 which reduced slightly at end of the class (78.40$\pm$7.77) and reduction was not statistically significant. ($p = 0.517$) (Table no.3).

Table 3: Changes in pulse rate before and after sessions for mantra meditation and control group

Group		Number of students	Mean	SD	Paired t test
Control group	Pulse rate before lecture	35	78.97	7.34	Not significant
	Pulse rate after lecture	35	78.40	7.77	P =0.517
Test group	Pulse rate before meditation	34	76.03	6.69	significant
	Pulse rate after meditation and lecture	34	72.00	4.96	p<0.0001

Qualitative remarks

In feedback questionnaire all the students of the test group (mantra meditation group) expressed the some to more feeling of relaxation, better concentration, reduction in thoughts, reduction in wandering of the mind. Out of thirty four students, nine students suggested to reduce the time of mantra meditation from eight minutes to five minutes, while five students suggested to increase duration from eight min to 10-15 minutes. One student suggested that distance between two students should be more as one student's mantra sound may disturb the nearby students. One student suggested instead of meditation playing on the ground will be more beneficial. In feedback questionnaire, nineteen out of thirty four students have written that they would like to do mantra meditation before at least one lecture per day, but not before all lectures while ten students would like to practice it, before each lecture. Five students would like to practice it sometimes in a day and not always. Twenty one students have written that they would like to practice mantra meditation daily and thirteen students have written that they would like to chant mantra sometimes.

DISCUSSION

Attention and concentration by the learner is extremely important in learning process. But, mind has an inherent nature of wandering either in the past or future, rarely concentrating on the present moment. Student's mind always wanders and is not receptive for the didactic lectures. There is a great scope for improvement in preparing the student's mind for improved receptivity, compartmentalization and focus on present moment. This can be achieved by some ancient techniques of meditation. Some popularly known techniques include mindfulness meditation[4,7,16-27], Yoga[28], Vipassana[12], and Zen meditation[12]. In the current study we wanted to evaluate the effect of one ancient technique named as mantra meditation. In another study conducted by Antoine Lutz[29] found that mental training can significantly affect attention and brain function. In contrast to our study, in the aforementioned study the practitioners participated in a 3 month meditation retreat during which they meditated for 10–12 hours/day. Though such techniques are effective, the time required for training the participants is very long, which does not conform to the time constraints of the current curriculum of medical students. In students' feedback questionnaire, all students in mantra meditation group reported that they were more attentive, comfortable, relaxed and had more concentration towards lecture. Similarly, Yi-Yuan Tang and colleagues[30] studied the effect of 5 days of meditation practice with the integrative body–mind training method. The study showed that there was significantly better attention and control of stress in the group who underwent meditation control group than that did not undergo meditation. Furthermore, the trainer for mantra meditation does not require any formal training and the technique is easy to learn and adopt. Other types of meditation need long duration of practice and discipline and silent place. The effects are achieved only after a long duration. Mantra meditation is quick, simple and easy to perform and we may achieve desired effects instantly. Students of mantra meditation group showed significant reduction in mean pulse rate while in students of control group, there was no significant difference in mean pulse rate between before and after session. This could be due to less stressful session of class, feeling of relaxation as reported by the students of meditation group. As far as MCQ tests are concerned, difference in students post test scores between control and test group was not statistically significant. But pre test score of meditation group was significantly better than control group. As per students feedback on mantra meditation many agreed that they were benefited by mantra meditation. There was better concentration towards lecture, reduction in flooding of thoughts, reduction in wandering of mind and relaxation.

Limitations

In discussion with students of mantra meditation group after session, some students told that there was some inhibition for chanting of mantra during first session but in later sessions, as all students were chanting, this inhibition was not the problem. One student told that there should be more space between two students as one student's mantra sound may disturb the nearby students.

CONCLUSION

This study is pilot investigation to explore the use of mantra meditation in improvement of classroom learning in medical students. We found that mantra meditation is simple to perform, well accepted by students and seems to have beneficial effect in relaxation, improved attention and concentration towards lecture. The students will also

get spiritual benefit after mantra meditation. This simple and easy mantra meditation could be adopted to enhance students' learning. Further more research is needed with more number of sessions, by different teachers, in different year students, in different subjects, to authenticate mantra meditation in learning process.

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