

## Nursing

**KEYWORDS:** Anapana meditation, Meditation, Cognitive Dysfunction, depression, ICCU.

**A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECT ON ANAPANA MEDITATION TECHNIQUE ON MILD DEPRESSION AND COGNITIVE DYSFUNCTIONS AMONG PATIENTS ADMITTED IN INTENSIVE CARDIAC CARE UNIT OF VARIOUS HOSPITALS OF MUMBAI, MAHARASHTRA**



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**Abstract:**

**BACKGROUND:** Anapana/Vipassana is ancient meditation technique rediscovered by Gautama the Buddha about 2500 years ago. It is currently being thought in India and several other countries under the guidance of Shri. S. N. Goenka as principle teacher of Anapana. It prompts conscious lifestyle changes enhances concentration of mind and facilitates deeper psychological introspection to bring about lasting behavioral changes. **AIM:** To Study the effectiveness on anapana meditation technique on mild depression and cognitive dysfunctions among patients admitted in intensive cardiac care unit of various hospitals of Mumbai, Maharashtra. **MATERIALS AND METHOD:** A quasi experimental study among 100 participants were enrolled for Anapana technique, where by anapana tool for before and after score was derived for Standardized Mini-Mental State Examination (SMMSE), Brief Cognitive Rating Scale (BCRS), Beck's Depression Inventory (BDI). **STATISTICAL ANALYSIS:** Data was stored in MS-Excel, statistical analysis was done in In-Stat Software, For comparison of pre and post data we had applied Wilcoxon Matched Paired test because data not follows normal distribution,  $p < 0.05$  was considered as statically significance. **RESULTS:** The pre and post comparisons among all parametres of Anapana technique among it was found that  $p < 0.05$ , hence we could state that this technique really helps to cognitive dysfunction patients. **CONCLUSION:** This Anapana meditation technique plays important role with patient of depression and modify cognitive dysfunction, and society gets benefited to save life and money at early stage of risk.

**INTRODUCTION:**

Intensive Cardiac Care Unit (ICCU) provides an environment characterized by stimulus deprivation and Poor social network. The Patients status in ICCU is such that a close monitoring with medical gadgets, mechanical or assisted ventilation and liberal use of drugs with Central Nervous System (CNS) side effects. If the patient is not adequately sedated all these measures would be felt quite stressful. Thus both, the ICCU environment and decompensated status of host makes him vulnerable to develop symptoms of anxiety, depression and cognitive deficits. This unhealthy state may lead to increased motor activity, irritability, tachycardia and hypertension. Therefore increased demand for cardiovascular work-load, morbidity and mortality.

Many symptoms of depression such as dysphoric mood and fatigue are also associated with other medical illnesses. Psychiatric

diagnosis made on such symptoms, lack specificity and dilemma to predict the need for psychiatric treatment.

To avoid further psychological loss patient need to adopt a meditation to get rid of depression. Meditation technique should be spiritually accepted by all religion. Observing the natural breath is a universal practice. Breath is breath, not a Hindu breath, a Muslim breath or a Christian breath. Thus, Anapana becomes universal.

**NEED OF THIS STUDY:**

Depressed mood, loss of self-esteem and other depressive symptoms are commonly seen as a reaction to severe illness. Fear of disability and loss of potency arise as the psychological defense of denial. A majority of patients feel that their Myocardial Infarction (MI) has dealt them a death blow and they feel shattered. Their sense of self has been damaged and they require intensive psychiatric intervention. (Stern)<sup>1</sup>

Mild depression is implicated in the pathophysiologic progression of cardiovascular disease as an independent risk factor, rather than simply as an emotional response to cardiovascular illness. Among patients hospitalized with MI, a psychiatric diagnosis of major depression has been shown to be associated with a 2 to 4 fold increased risk for cardiac mortality. Depression is found to be an independent predictor of increased mortality after Acute Myocardial Infarction (AMI).

After MI, 35 to 45% of patients show some degree of depression. Similar rates have been reported with other manifestations of Coronary Artery Disease (CAD).

Persons who have mental stress during daily life are at twice the risk of MI. Patients with post-MI depression have higher mortality rates than non-depressed MI patients. Depression may complicate the recovery of Ischemic Heart Disease (IHD). (O'connor).<sup>2</sup>

Anapana provides a tool to deal with the fears, anxieties and pressures across all age groups. Besides helping to calm and concentrate the mind, Anapana help people to understand themselves better and gives them an insight into the workings of their own minds. Because of its simplicity, the technique is easy to understand and practice.

There have been numerous studies looking at depression and cognitive dysfunctions. Currently, in this context, this work is one group pre-test and post -test study, attempting to compare depression, cognitive dysfunctions and other socio-demographic characteristics of ICCU patients further transferred in acute medical ward by using audio of anapana meditation technique.

**Anapana:**

Anapana, i. e. Awareness of respiration. This involves continuous "Observation" of the Natural flow of incoming and outgoing breath. Gradually the mind gets concentrated on this natural activity and the person can exercise greater control over his mind. It promotes awareness of the present moment, equanimity and tranquility of mind, since the act of breathing is free from any craving or aversion.

**OBJECTIVES OF THE STUDY:**

1. To determine mild depression and cognitive dysfunctions in patients with heart disease admitted in ICCU before administrating Anapana meditation technique.
2. To determine mild depression and cognitive dysfunctions in patients with heart disease admitted in ICCU after administrating Anapana meditation technique.
3. To compare the effectiveness Anapana meditation technique on mild depression and cognitive dysfunctions in patients with Heart disease admitted in ICCU before and after the administration of meditation.

**METHODOLOGY:**

Subjects for the study were selected from the in-patient of Department ICCU Gokuldas tejpal hospital Mumbai, SIR J J hospital Byculla Mumbai, with total bed strength of 1500, catering to the needs for patients mainly from central and new Mumbai. It has emergency, in-patient facilities for more than 120 patients, as well as out-patient and community services in psychiatry department.

**METHOD OF COLLECTION OF DATA:****1. Sampling Technique**

100 subjects who were diagnosed as having cardiac disease admitted in ICCU were chosen by Non -Probability purposive sampling.

**2. SAMPLING PROCEDURE:**

Initial contact was made in ICCU and the patients having cardiac disease were identified. An informed consent was obtained from those who were willing to participate in the study.

Investigations (After 30 days of experiment): like Liver Function Tests (LFT) to rule out any liver disease, Renal Function Tests (RFT) to rule out any renal disease, Random Blood Sugar (RBS) for diabetic status, Serum Electrolytes, ECG and Cardiac Enzymes – CPK, CKMB; were one to rule out any systemic disorder which may be causative of depression or cognitive dysfunctions before and after Anapana meditation technique.

Patients satisfying the inclusion and exclusion criteria were assessed for depression on Beck's Depression Inventory (BDI) and cognitive functions were assessed on Standardized Mini-Mental State Examination (SMMSE) and Brief Cognitive Rating Scale (BCRS) .Before and after administering Anapana meditation technique (one group pre-test and post-test)

The socio-demographic data was collected on a semi – structured pro-forma.

**INCLUSION CRITERIA FOR CASES:**

- Patient admitted in ICCU with heart disease.
- Age : 18-64 years
- Patients who stay in ICCU for at least 3 days.
- Patients who are willing to participate.

**EXCLUSION CRITERIA FOR CASES:**

- Patients < 18yrs and >64 years.
- History of substance use within one week prior to admission except tobacco and social use of alcohol.
- Any psychiatric consultation in last one month.
- Patient with known history of any chronic organic mental illness.

- Patients with multiple chronic diseases causing cognitive impairment like neuro-degenerative disease, thyroid and adrenal disorders, renal disorders, cancers and stroke.
- Patients who are critically ill and who cannot participate in the study like patients on respiratory or Ventilator support.

**Type of the Study:**

It was a Quasi experimental (One group Pre-test and Post-test) study that was conducted during the study period of August 2016 to December 2018.

**Instruments of Assessment:**

- Anapana meditation technique (Audio)
- Standardized Mini-Mental State Examination (SMMSE)<sup>3</sup>
- Brief Cognitive Rating Scale (BCRS)<sup>4</sup>
- Beck's Depression Inventory (BDI)<sup>4</sup>

**Anapana Meditation Technique:**

Anapana is awareness of respiration. This involves continuous "observation" of the natural flow of incoming and outgoing breath. Gradually the mind gets concentrated on this natural activity and the person can exercise greater control over his mind. It promotes awareness of the present moment, equanimity and tranquillity of mind, since the act of breathing is free from any craving or aversion.

In this study audio in researcher voice is used for 10minutes in sitting position

**TECHNIQUE:**

Now let us practice Anapana meditation for few minutes-2 times

1. Sit comfortably, comfortably in any posture that suits you
2. Keep your back and neck straight,
3. keep your eyes gently closed
4. Those who have spectacles should take off their spectacles during meditation period
5. keep your mouth gently closed and focus your entire attention –(2times) on the area at the entrance of the nostrils–(2times)
6. Remain aware – (2times) of every breath–(2times) coming in going out, natural breathe normal breath as it is.
7. If it is long –it is long, If it is short –it is short
8. Passing through left nostrils (2 times), passing through right nostrils-(2times) passing through both nostrils-(2times)
9. Just remain aware do nothing, remain aware(2minutes gap)
10. Alert-attentive –vigilant remain Alert-attentive –vigilant.
11. Constantly aware of breath the incoming breath outgoing breath –(2times)
12. Keep your attention fix on this area at the entrance of nostril like a gate keeper like a watchmen
13. Aware of every breath, aware of entering nostrils, aware of moving out of nostrils.
14. Alert-attentive –vigilant remain Alert-attentive –vigilant.
15. Of incoming breath outgoing breath, natural breath pure breath nothing but breath
16. Bhavatu Sabb Mangalam- (3times)

**RESULTS:**

The mean total score on SMMSE for all the domains namely orientation, registration, attention, recall, language function and construction ability in the 17.99 (SD = 2.11) in the pre-test and post-test was 27.73 (SD=1.66). The p value <0.0001 in the overall group statistics was very highly significant. **(Pls. See Table 1 and Figure 1)**

The mean total score on BCRS for all the domains namely concentration, recent memory, past memory, orientation, functioning and self-care in the pretest was 1.48 (SD=0.44) and 1.16 (SD=0.28) in the post test. The p value <0.0001 in the overall group statistics was very highly significant. **(Table 2 and Figure 2)**

The mean BDI score in the pre-test was 36.75 (SD = 6.91) and 15.41 (SD=5.14) in the post test. The p value <0.0001 in the overall group

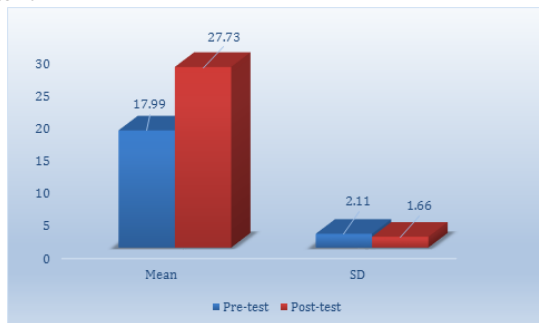
statistics was highly significant. (Table 3 and Figure 3)

In Table. 4 the laboratory parameter maximum patients have shown significant difference in ECG CKMB and in Blood sugar on 7<sup>th</sup> and 30<sup>th</sup> days of practicing Anapana meditation technique at home twice a day, were as their no significant change found in LFT and RFT respectively.

**Table 1: SMMSE -Total Score Data among the Study Participants.**

Group	N	Mean	SD	95% CI	Wilcoxon Matched Paired Test Value	p-value
Pre-test	100	17.99	2.11	17.57-18.41	-495.000	<0.0001
Post-test	100	27.73	1.66	27.40-28.06		

\*Significant When  $p < 0.05$ , SD-Standard Deviation, CI-Confidence Interval

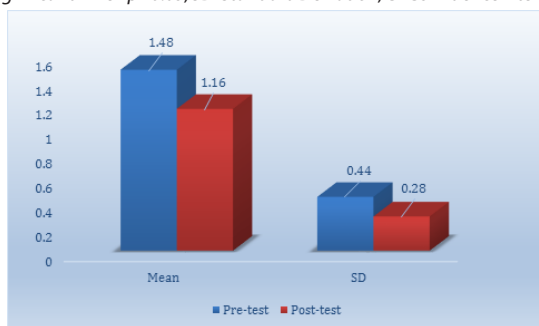


**Figure 1: Column Chart Showing SMMSE -Total Score Data among the Study Participants.**

**Table 2: BCRS – Total Score Data among the Study Participants.**

Group	N	Mean	SD	95% CI	Wilcoxon Matched Paired Test Value	p-value
Pre-test	100	1.48	0.44	1.4-1.57	187.000	<0.0001
Post-test	100	1.16	0.28	1.11-1.22		

\*Significant When  $p < 0.05$ , SD-Standard Deviation, CI-Confidence Interval

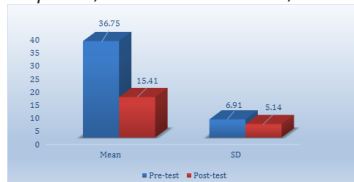


**Figure 2: Column Chart Showing BCRS – Total Score Data among the Study Participants.**

**Table 3: BDI – Total Score Data among the Study Participants.**

Group	N	Mean	SD	95% CI	Wilcoxon Matched Paired Test Value	p-value
Pre-test	100	36.75	6.91	35.38-38.12	495.000	<0.0001
Post-test	100	15.41	5.14	14.39-16.43		

\*Significant When  $p < 0.05$ , SD-Standard Deviation, CI-Confidence Interval



**Figure 3: Column Chart Showing BDI – Total Score Data among the Study Participants.**

**Table 4: Effect of Anapana on Laboratory Parameter among the Study Participants.**

SR NO	NAME	ON ZERO DAY	AFTER 7 <sup>TH</sup> DAY	AFTER 30 <sup>TH</sup> DAY
1.	ECG	0(Normal)	56 (normal)	95 (normal)
2.	Cardiac Enzymes –CPKCKMB	0(Normal)	88 (normal)	100(normal)
3	FBS:PPBS: (LFT):	10(Normal)	44(Normal)	89 (normal)
4	1.PROTEIN:	70(Normal)	75(Normal)	80 (normal)
	2. ALBUMIN	60(Normal)	65(Normal)	85 (normal)
	3A G RATIO:	70(Normal)	74(Normal)	89 (normal)
	4.T. BILIRUBIN:	90(Normal)	94(Normal)	94 (normal)
	5. SGOT:SGPT:	10(Normal)	44(Normal)	89 (normal)
5	(RFT):			
	1.BLOOD UREA:	90(Normal)	92(Normal)	94 (normal)
	2.SERUM CREATININE:	90(Normal)	92(Normal)	94 (normal)

**DISCUSSION:**

This study shows that there is significant difference in mild depression and cognitive deficits in patients admitted to ICCU after practising Anapana meditation for 30days even after discharge from hospital. After discharge data were collected either telephonically or with personal interview while monthly follow up in OPD with same instruments. Technique was highly appreciated by clients and after observing changes in laboratory parameters and promised for continuity in practicing the technique.

In this study of depression and cognitive dysfunctions the age, sex, educational status and socio-economic status were matched.

The mean age in the present study was 51.3 years which was similar to the mean age in the studies done by Ladwig et al<sup>5</sup> and Ziegelstein et al<sup>6</sup>, but was not comparable to various other studies which assessed depression in patients with heart disease (Schleifer et al<sup>7</sup>, Frasure-Smith et al<sup>8</sup>, Lesperance et al<sup>9</sup>, Pennix et al<sup>10</sup>) and also not comparable to other studies which assessed cognitive dysfunctions in patients with heart disease. (Barclay et al<sup>11</sup> and Zuccala et al<sup>12</sup>)

In this study, 73.3% of patients admitted to ICCU had their primary education only. This is similar to the results in the previous study done by Frasure – Smith et al<sup>8</sup> and Lesperance et al<sup>9</sup> which showed < 8 years of education in their sample. In this study the independent variable anapana mediation technique is used to evaluate the mild depression and cognitive dysfunction in ICCU patients by using SMMSE, BDI and BCRS before and after anapana meditation technique.

A significant number (73.3%) of patients in this study were assessed on 3<sup>rd</sup> day of admission following which they were noticed to be having depression and cognitive dysfunctions. Regarding depression the results of this present study was not comparable to many of the previous studies which found depression at a various time gap of 1 month (Honig et al<sup>13</sup>, Lauzon et al<sup>14</sup>); 4 months (Schleifer et al<sup>7</sup>, Ziegelstein et al<sup>6</sup>); 6 months (Frasure-Smith et al<sup>8</sup>, Ladwig et al<sup>5</sup>, Travella et al<sup>15</sup>); 1 year (Hance et al<sup>16</sup>, Dickens et al<sup>17</sup>) and 18 months (Luutonen et al<sup>18</sup>). Regarding cognitive dysfunctions the results in the present study was comparable to a previous study by Sauve et al<sup>19</sup> which found cognitive dysfunctions at the time of hospitalization, but was not comparable to other studies which had found cognitive dysfunctions at various time gap of 6 weeks (Almeida et al<sup>20</sup>); 3 months (Risto et al<sup>21</sup>) and 6 months (Ekman et al<sup>22</sup>). In this study the SMMSE scale did not show any statistical significance in the domains of registration, recall and language even after anapana meditation technique. This was not comparable to the results shown in the previous studies on the domains of recall (Barclay et al<sup>11</sup>, Sauve et al<sup>19</sup>, Bennet et al<sup>23</sup>) and registration (Callegari et al<sup>24</sup>), which may be because of the different test scales used in these studies. No other previous study have mentioned about language functions.

In this study BCRS scale was also used to study the cognitive dysfunctions. Results showed a statistically very highly significant deficit in domain of concentration after Continue Anapana meditation practice for 30 day, two times a day.

Finally, in the SMMSE scale and BCRS scale the overall total scores in cases showed results which were statistically very highly significant after Continue Anapana meditation practice for 30 day two times a day. This was similar to the results noticed in many of the previous studies of overall cognitive decline.

#### CONCLUSION:

- The study was done to assess the effectiveness of Anapana meditation technique on the cognitive dysfunctions and mild depression in patients with heart disease admitted to ICCU.
- Medical diagnosis showed statistically very highly significant number (33.3%) of patients were diagnosed as having unstable angina.
- A significant number (50%) of patients in ICCU were diagnosed as having mild depression clinically according to the ICD-10 diagnostic criteria. Of this 50%; 30% had mild depressive episode and 20% had moderate depressive episode.
- Subjects admitted to ICCU had more deficits in orientation on SMMSE score which was statistically very highly significant.
- Subjects admitted to ICCU had more deficits in attention on SMMSE score which was also statistically very highly significant.
- Deficits in constructional ability was seen on SMMSE score which was statistically significant.
- Deficits in concentration on BCRS score was statistically very highly significant. Overall cognitive decline on SMMSE and BCRS scores were statistically very highly significant.
- Mild Depression assessed on BDI among the two groups was statistically highly significant.
- Over all Anapana meditation technique helps patient to reduce their depression and modify cognitive dysfunction.

#### SUMMARY:

100 ICCU patients with heart disease were included in study to assess effectiveness of Anapana meditation technique on mild depression and cognitive dysfunctions. The results of this study showed that Anapana meditation was effective on the patients admitted to ICCU, Also practicing Anapana meditation technique daily.

#### RECOMMENDATION:

The researcher recommends to Apply Anapana meditation technique for cancer patient

1. Same study can be conducted by changing the population i.e. spinal surgery patient and patient with psychiatric disorder like depression and cognitive dysfunction.
2. Anapana meditation technique can be encourage for behavioral modification in school going children's. And also for prisoners.

#### IMPLICATION OF THE STUDY:

**NURSING EDUCATION-**Anapana technique can be used for nursing students. It can be considered as an alternative therapy.

##### 1. Nursing Services

- There should be a provision of prayer room in the hospital premises to encourage patient to sit quietly minimum for 10 min to achieve inner peace and to think positive on their disease conditions.
- This anapana meditation technique will help nursing officers to keep motivated while giving care to patients also helps to focus to achieve outstanding performance in nursing care.

##### 2. Nursing Administration

- Anapana meditation technique should be a part of daily routine for administrative personnel's since they deal with nursing resource planning and managing the patient oriented activity for institutions.

**Ethical Clearance:** Taken.

**Funding:** Self.

#### ACKNOWLEDGEMENT:

I am Chitra A. Beldar declares this Study conducted by me during my Phd Nursing course hence no plagiarism has to be appended. This study has been carried out with permission of SIR JJ Hospital Byculla Mumbai. Im assuring that my Study is not published anywhere.

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