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### **Effect of Automatic Self Transcending Meditation on mental health by reducing stress and improving sleep in Adults**

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#### **ABSTRACT**

The present study explored the impact of Sahaj Samadhi Meditation (SSM), a category of Automatic Self Transcending Meditation (ASTM), on perceived stress and sleep quality in adults. The study design was a single group pre-post assessment. Perceived Stress Scale (PSS), and Pittsburgh Sleep Quality Index (PSQI) were used in this study. The population was assessed at the beginning of the program (day 0), after 2 weeks (day 16) and 2 months (day 60). Significant results using paired t-test clearly demonstrate that practice of SSM was associated with lowering in the stress level and improvement in sleep quality. Studies have shown that stress and sleep affects the mental health. Thus, SSM is also associated with improved mental health.

**KEYWORDS:** Meditation, Automatic Self Transcending Meditation (ASTM), Perceived Stress, Sleep

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## **INTRODUCTION**

Mental health crisis is on the rise in every country in the world and if not addressed then could cost the global economy up to \$16 trillion between 2010 and 2030.<sup>1</sup> According to World Health Organization (WHO), depression is a common mental illness worldwide, affecting more than 300 million people. Depression is different from usual mood fluctuations and short-lived emotional responses to challenges in everyday life.<sup>2</sup> Chronic stress reduces mental health and increases the risk of developing depression and anxiety as well. Another factor which increase the risk of poor mental health conditions is disturbed sleep. Several other studies have looked at the relationship between sleep and mental health and found that sleep problems affects the mental health.<sup>3</sup>

Studies have shown that stress can adversely affect physical and mental health<sup>4, 5, 6, 7, 8</sup>. Stress can increase the risk for developing dementia, hypertension and diabetes<sup>9</sup> and affect the immunity in some specific population.<sup>10</sup> Heart disease, diabetes, addiction, hair cortical, psychological and mental health issues have all been linked to stress and tension<sup>11,12,13</sup>. Stress can raise the depression level<sup>4</sup>, and stress can affect the sleep pattern of an individual.<sup>14</sup>

Perceived stress can be also seen as predisposing, precipitating and perpetuating factors for sleep problems.<sup>14</sup> In a study on Chinese younger adolescents found perceived stress as significant risk factor for poor sleep quality.<sup>15</sup> Studies have associated stress with sleep difficulties as well such as difficulty in falling asleep, fragmented sleep, recurrent and frequent nightmares, in infants, children, adults, elderly people<sup>16, 17, 18, 19, 20, 21, 22, 23, 24</sup>. Stress is strongly linked to disturbed sleep and impaired awakening.<sup>25</sup> It is well documented that stressful life events can negatively affect sleep quality.<sup>26</sup> Poor sleep quality is associated with an increased risk of symptoms of anxiety and depression.<sup>27</sup> One of the study has also shown that bedtime stress and worries were the main predictor of sleep quality.<sup>28</sup> Researches have shown that irregular sleep patterns have negative impact on psychological health.<sup>29</sup> Poor quality and loss of sleep can cause daytime drowsiness and fatigue that affect one's performance level and motivation.<sup>30</sup>

Meditation is often seen as tool for reducing psychological problems like depression, anxiety, stress, sleep quality etc. There are increasing evidences for utility of meditation as an adjunct clinical intervention for various disorders that manifest due to poor mental health like depression, anxiety, dementia, cognitive impairment, sleep related disorder etc. Most of the researchers have examined the impact of mindfulness meditation<sup>31,32</sup>, effect of iRest Meditation technique on sleep, Singing Bowl Sound Meditation<sup>12</sup> etc. However, few studies have focused their attention on the impact of Sahaj Samadhi Meditation.<sup>33</sup>

Sahaj Samadhi Meditation (SSM) belongs to the category of meditation known as Automatic Self Transcending Meditation (ASTM), as it involves automatic transcending in the procedure of

meditation itself to a state lacking mental activity. This technique does not involve any attempt to concentrate, control the mind, or thoughts which are seen to interfere with the process of transcending itself. Though it involves no effort, this ancient and rare type of meditation brings a profound effect. Sahaj Samadhi Meditation draws attention inwards to quiet the mind, and induces physiological and mental relaxation<sup>34, 33</sup>. This meditation technique is offered by Art of Living and it has brought changes in the lives of millions of people. This technique involves a specific sound value (mantra) which enables the mind to experience a restful yet alert state of consciousness.<sup>35</sup> Studies has shown effectiveness of ASTM in improving health related quality of life, depression, anxiety, blood pressure, cardiovascular disturbances, heart rate variability etc<sup>36, 33, 37</sup>. Positive effect of meditation techniques are observed on stress level in specific population as well<sup>32, 38</sup>.

The present work aimed to study the impact of SSM on improvement in mental health by change in stress level and sleep pattern. On the basis of prior studies on meditation it has been hypothesized that Sahaj Samadhi practice will lead to significant improvements in the perceived stress level as well as sleep for an individual, both of which contribute greatly to mental health of an individual.

## METHODOLOGY

### *Study Design*

This was a single group pre-post study. The study was conducted on individuals who participated in the SSM Programs in Bangalore, India. The participants were recruited through word of mouth and social media campaigns. The IEC approval was obtained by the Ethics Committee of Sri Sri Institute for Advanced Research.

### *Sample Size*

The study included participants between 16 to 70 age range with no serious illness and not practicing any meditation previously and excluded those who were already practicing any meditation and yoga technique, who were below 16 and above 70, who have any serious illness. The sample size was 120. Out of 120, 94 participants filled both the questionnaires for Day 16, 101 participants filled PSS for Day 60 and 108 participants filled PSQI for Day 60. Fifty-two participants filled PSS and 60 participants filled PSQI for all 3 time points.

**Table: 1 demographic details of the participants: PSS**

S.No.	Day 0 - Day 16	Day 0 - Day 60	Day 0 - 16 - 60
Female	43	46	21
Male	51	55	31
Avg. Age of the Participants	35	35	34
Total Number of Participants	120		

**Table: 2 Demographic details of the participants: PSQI**

S.No.	Day 0 - Day 16	Day 0 - Day 60	Day 0 - 16 - 60
Female	40	51	24
Male	54	57	36
Avg. Age of the Participants	35	35	34
Total Number of Participants	120		

## ***Scales***

### **Pittsburgh Sleep Quality Index (PSQI)**

Sleep pattern was measured by self-administered questionnaire the Pittsburgh Sleep Quality Index (PSQI).<sup>39</sup> The PSQI includes 19 items, which has seven dimensions of sleep: duration, disturbance, latency, daytime dysfunction, efficiency, quality, and sleeping medication use. The PSQI includes open-ended items such as “During the past month, how many hours of actual sleep did you get at night?” and questions with likert-scale response options such as “During the past month, how would you rate your sleep quality overall?” (1 = very good, 4 = very bad) and “During the past month, how often have you had trouble sleeping because you had bad dreams?” (1 = not during the past month, 4 = three or more times a week).

### **Perceived Stress Scale (PSS)**

The 10-item Perceived Stress Scale measured feelings of stress in the last month.<sup>40</sup> Participants are asked to indicate how often (0 = never, 4 = very often) they perceived situations to be stressful using the self-administered questionnaire. Higher scores indicates greater feelings of perceived stress. The scale has good validity ( $\alpha = .84$ ).

## ***Procedure***

SSM was offered at multiple locations across Bangalore over the same 3 days. The class size varied from 10-25 participants. SSM was taught by expert instructors over 3 two hour sessions on consecutive days. One Day 1, instructor introduced SSM to the participants. After this participants received their specific Mantra and were also taught the technique to use that mantra. On the 2-3 day, meditation was practiced. Participants were required to practice SSM at home for 20 min, twice daily over the study period. Participants had to maintain their daily practice log for recording their practice frequency.

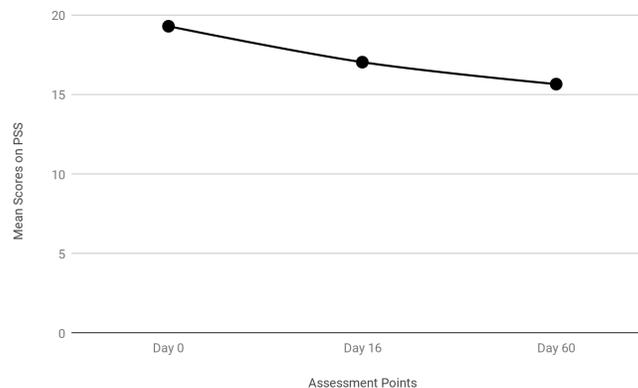
## RESULTS AND DISCUSSION

**Table: 3 Mean Value, t value and Cohen's d value on the measure of Perceived Stress**

	N	Mean (Variance)			t value	Cohen's d
		Day 0	Day 16	Day 60		
Day 0 - Day 16	94	19.72 (17.92)	17.04 (30.06)	NA	1.98***	0.54
Day 0 - Day 60	101	19.82 (23.46)	NA	16.14 (22.41)	1.98***	0.76
Day 0 - Day 16 - Day 60	52	19.31 (21.04)	17.05 (26.76)	15.67 (24.11)	2.01***	0.46* / 0.76**

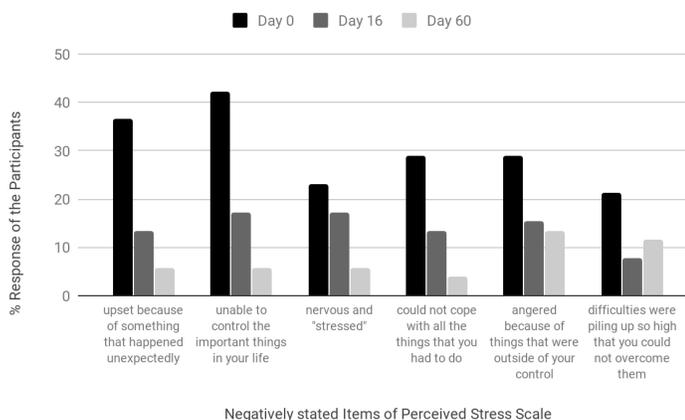
\*\*\* $p < 0.01$ ; \* For Day 0-Day 16 \*\* For Day 0-Day 60

Table 3 shows significant pre-post differences for the perceived stress level on Day 0 - Day 16 ( $p < 0.01$ ; cohen's  $d = 0.46$ ) and Day 0 - Day 60 ( $p < 0.01$ ; cohen's  $d = 0.76$ ). The reduction in mean values indicate that by practicing SSM participants felt reduction in the perceived stress. We have only considered the results of 52 participants who participated in all the three points of assessment. Compared with Day 0 assessment, participants demonstrated significant reduction in perceived stress on Day 16 and Day 60. The small yet close to medium effect size of the intervention is observed on the 16th day of assessment whereas the medium yet close to large effect size of the intervention is observed on the 60th day of assessment.



**Graph. 1: Mean Scores on PSS**

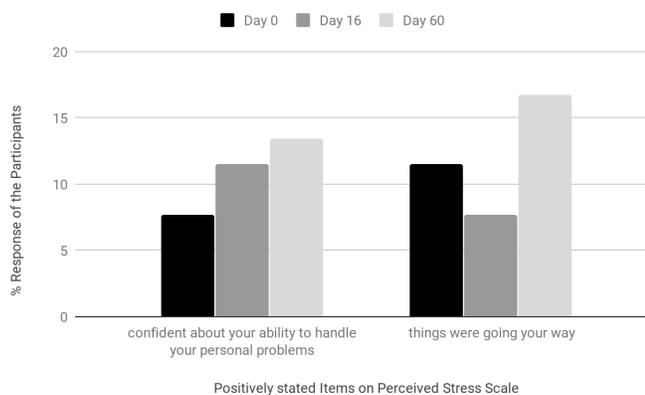
Graph 1 shows the reduction in the mean PSS value at three different points of assessment. Those who participated in the intervention reported decreased perceived stress when compared to pre-intervention.



**Graph. 2: Percentage Response of Participants on Negatively Stated Items for the Option “Often” of the PSS.**

After practicing the SSM for two months participants felt more confident about their ability to handle personal problems, were able to cope with all the things that they had to do, felt on top of the things. The results indicate that SSM helped in improving perceptions of situations around and ability to cope up with them.

Within a short span of 2 weeks participants reported reduction in getting upset over unexpected things and anger because of things outside their control. This shows greater ability to handle situations and maintaining calmness over unexpected events. They also reported reduction in feelings of nervousness and stress which is an indication of improved resilience and health. One of the main cause of stress is that we feel we have more to do and less and not able to cope up with important things. Participants also reported a greater ability of feeling ‘in control’ which is an indication of greater energy, improved critical thinking and decision making. This trend is maintained at day 60 also. Additionally, changes in coping with the situation and overcoming difficulties were also observed. This indicates that regular practice of Sahaj samadhi increases energy and ability to handle difficult situations.



**Graph. 3: Percentage Response of Participants on Positively Stated Items for the Option “Often” of the PSS.**

An important thing to note is that within 2 weeks of the practice the participants feel a

difference as indicated by the scores. These benefits are augmented at day 60. The trends in for overall population and for the population who completed all 3 time points remain the same.

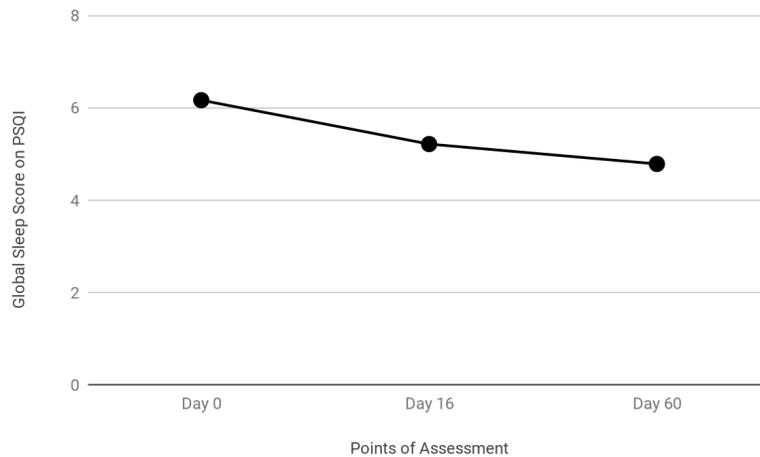
These results of this study are aligned with the observations of previous studies showing practice of meditation reduces the stress and improves wellness<sup>41, 12, 42, 43, 44, 45, 46, 47, 48</sup>.

**Table 4: Pittsburgh Sleep Quality Index**

	N	Mean (Variance)			t value	Cohen's d
		Day 0	Day 16	Day 60		
Day 0 - Day 16	94	6.32 (9.68)	5.38 (7.65)	NA	1.98***	0.3
Day 0 - Day 60	108	6.49 (12.49)	NA	5.18 (11.44)	1.98***	0.3
Day 0 - Day 16 - Day 60	60	6.16 (10.85)	5.21 (6.88)	4.78 (8.71)	2.001***	0.3* / 0.44**

\*\*\* $p < 0.01$ ; \* For Day0-Day 16 \*\* For Day0-Day 60

Table 4 shows significant pre-post differences for the sleep quality on Day 0 - Day 16 and Day 0 - Day 60 ( $p < 0.05$ ). Results indicated that by practicing SSM participants felt improvement in the sleep quality. Compared with Day 0 assessment, participants demonstrated significant improvement in the quality of sleep on Day 16 and Day 60. However, the small effect size of the intervention is observed on the 16th day of assessment and the small yet close to medium effect size of the intervention is observed on the 60th day of assessment.



**Graph. 4: Global Sleep Score on PSQI**

Graph 4 shows drop in the Global Sleep Scores indicating improvement in the sleep quality by practicing SSM overtime.

Results on PSIQ revealed that participants felt improvement in sleep quality after practicing SSM for two months. The findings of the study indicates that SSM resulted in significant improvement in the components of subjective sleep quality (participants to rate their overall sleep),

sleep latency (how long it takes to fall asleep), less sleep disturbances (disturbances while sleeping include waking up in between), less day-time dysfunctioning (not able to perform work and any responsibility due to sleep problem) and overall global sleep (overall sleep which include sum of all the component). At Day 0, 18% of the participants had reported that the overall sleep quality was very good. This % rose to 33% by day 60 indicating that SSM practice had improved the overall sleep quality. Further, at Day 0 almost 51% of the participants reported that they took less than 15 min to fall asleep. This % rose to 66% at Day 60, indicating that practice of SSM improved sleep quality relaxed mind. Results of the study revealed that by practicing SSM regularly for two months, participants reported that they had less trouble in sleeping. At Day 0, the percentage of participants who used to wake up in the middle of the night or early morning was 41%, however, this percentage dropped to 21% at day 60. Results clearly indicate that regular practice of SSM improves the quality of sleep.

The present study is an attempt to find out the impact of SSM on mental health by reducing perceived stress and improving sleep quality in general population. Higher stress levels, measured via the Perceived Stress Survey (PSS), were found to be directly related to an increased number of everyday cognitive failures.<sup>49</sup> Stress can alter the functioning of the hippocampus located in the brain which can limit neuron growth and memory function.<sup>50</sup> A study done by Jindal et al (2013) suggested that meditation improves the functioning of the prefrontal cortex (PFC) in the brain which includes the frontal lobes that control executive functioning, including cognitive functioning, decision making, social behavior and problem solving.<sup>50</sup> Practicing meditation produces a relaxation response which can help the individual to stop worrying about work and other things in free time and be in present moment. Therefore, the present study clearly indicates that SSM has positive impact on the perceived stress and sleep quality of an individual. The result supported the findings on the efficacy of meditation on reducing stress and improving sleep<sup>51,32</sup>. Findings of the study suggested improvement in perceived stress, subjective sleep quality, and sleep latency in participants with time. There was a beneficial change detected in perceived stress, sleep quality, sleep latency, sleep disturbance, and sleep efficiency as well. Results are in alignment with the previous studies on Meditation which has shown promise in inducing the relaxation response and helping alleviate anxiety and improve well-being<sup>12,31</sup>.

## **CONCLUSION**

Mental health is an important aspect of life. Stress and sleep disturbances are the early signs of mental health problems. In the current study we found out that regular practicing of SSM has reduced the perceived stress and improved the overall sleep quality in the participants. After practicing SSM for two months participants felt that they more confident about their ability to handle

personal problems, were able to cope with all the things that they had to do, felt that they were on top of the things, and felt less angered. Further, participants reported that their overall sleep quality has been improved, they take less time in sleeping (helps in treating insomnia), they were having less disturbed sleep and less daytime dysfunction due to sleep deprivation. Thus, the present study provide an evidence on the efficacy and safety of non- pharmacological intervention such as SSM help in improving mental health by better sleep quality and reduced perceived stress level. Thus, it can be concluded that meditation can be an alternative remedy for treating poor sleep and stress among individual by decreasing the use of harmful sedatives and anti-anxiety drugs. Thus, ASTM may be considered an useful intervention to reduce psychological distress in healthy, non-clinical populations.

### **LIMITATION AND FUTURE RESEARCH**

There should be one control group to assess the impact of SSM. Future study should include sleep quality and perceived stress measurements at more than 2 months interval as well, to determine longitudinal efficacy of SSM. The research in field of ASTM is still in its infancy stage, more researches are needed in this direction to gain knowledge about it's efficiency.

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