



EFFECTIVENESS OF SINGING BOWL MEDITATION TECHNIQUE TO REDUCE STRESS AMONG GRASS ROOT LEVEL HEALTH WORKERS AT SELECTED PHC's, PUDUCHERRY

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Abstract:

Background: Stress is a global and near-universal human experience, and everyone can benefit from learning about the condition. **Aim:** The study aimed to evaluate the effectiveness of singing bowl meditation technique on the level of stress among grass root level health workers. **Methodology:** A quantitative approach with a quasi-experimental pre-test and post-test control group design was adopted among 60 purposively selected grass-root level health workers working in selected Primary Health Centres of Puducherry. Standardized Perceived Stress Scale (PSS-10) was used to assess stress, and participants meeting inclusion criteria were assigned equally into experimental and control groups. **Results:** The pretest mean stress score among grass-root level health workers in the experimental group was 28.03 ± 2.67 , which decreased to 22.33 ± 2.12 in the post-test, yielding a mean difference of 5.70. The paired t-test value of 17.892 was statistically significant at the $p < 0.001$ level, indicating that the Singing Bowl Meditation Technique was effective in reducing stress in the experimental group. **Conclusion:** The study was conducted among grass-root level health workers who worked in selected PHC at Puducherry to evaluate the effectiveness of singing bowl meditation technique.

Keywords: Stress, Singing bowl meditation technique, Health workers

INTRODUCTION

Stress is a global and near-universal human experience, and everyone can benefit from learning about the condition. No one is immune to stress, regardless of age, gender, race, or religion. Stress can be a useful tool for boosting our energy and alertness. But most of the time, stress is a negative force that causes various unwanted effects in our lives.¹

According to a study conducted by Centre of Healing (TCOH), a Delhi-based mental health platform, stress and anxiety have increased among people since the Covid-19 pandemic. The survey found that 74% and 88% in India reported stress and anxiety, respectively.²

Stress related to one's job is referred as occupational stress. It arises due to unexpected responsibilities and pressures on a person. Health Workers are India's grass-roots health workers. Frontline and grass-roots healthcare workers are under tremendous pressure due to the Covid-19 pandemic and the risk of contracting Covid-19. Since the pandemic began, some have died from the disease and the stress it caused.³

Today Himalayan singing bowls are becoming more and more popular in sound therapy. Researchers in psychoacoustics examine how distinct brainwave patterns correspond to specific frequency ranges, and some propose that targeted sound stimulation may help realign dysregulated neural rhythms. Therapists working with sound-based interventions suggest that these vibratory stimuli interact with physiological and subtle bodily processes, potentially supporting the reduction of physical, psychological, and emotional dysregulation.⁴

Singing bowls can help the person to stay grounded. The vibration travelling through bony structure of the feet, this also opens up, gushing spring which is an acupuncture point of the feet responsible for life force energy. Singing bowls offers a modern magical pathway to help in happiness journey by providing mind, body, and spirit experience. Through power of sound and vibration, singing bowls calm the mind and deeply relax the body by deep breathing. "Singing bowls speaks the language of brain – Frequency".

Sound and vibration affect the mind by beta brain waves (busy thinking) to alpha/theta waves (relax and calm mind) and balancing both hemisphere increases learning ability. It also provides relief from headache, fatigue, and insomnia. Since the body is primarily water based, sound waves passes systematically through deep into muscles, tissues, organs, bones, etc. and promotes deep relaxation. It switches off sympathetic nervous system and switch on parasympathetic nervous system.

Researchers have reported that lying down and listening to sound meditations that combine low-frequency, high-intensity tones from singing bowls, gongs, and similar instruments can trigger a strong relaxation response and enhance mood and perceived well-being. Because this practice is simple, does not demand advanced skills, and is easy to learn, such sound-based relaxation may offer a practical approach to stress reduction with meaningful benefits for health and overall quality of life.⁵

NEED OF THE STUDY

One of the key elements of NRHM is to provide trained health activists to each village in the country. The success of grass-root level health worker of NRHM depends on how efficiently he/she can perform the tasks given. The effectiveness of frontline health care workers depends on stress levels and a variety of stress-related

factors.⁶ In addition to various ICDS services such as nutritional assistance, health education, health screenings, and referrals, it is involved in national health programs such as integrated disease control programs such as pulse polio immunization, dengue fever, and malaria. As working women, they have a dual responsibility for their household chores and program activities.⁷ These low-wage grassroots health workers have tasks to perform and complete, and meeting their goals in a limited amount of time can cause stress and frustration among them.⁷ A study showed that 56.5% of ASHA employees experienced depression, anxiety and stress during this pandemic. 10 Most of her AWW in urban (33%) and rural (38.5%) areas experience moderate levels of stress. The study found that 16.5% of AWW in urban areas and 7.5% of AWW in rural areas had low stress levels. Rural AWW experienced moderate stress than urban AWW. His AWW in the 25–36-year-old group has more stress.⁸ They are responsible for the health of the community, but neglect their own health. Information on psychosocial conditions and occupational stress and their effects on workers' health is lacking.⁷ There is a lack of information on the workload of health workers at the grassroots level. Therefore, this research is critical in maximizing the existing grassroots health workforce by improving their mental health, quality of services, and taking action to address these issues.⁶ Some grass root-level health workers told researchers about the issues they were dealing with during their Covid-19 vaccination camp training. So, the researcher sought to clarify levels and investigate the effectiveness of the singing bowl meditation technique for reducing stress in health care workers at the grassroots level.

OBJECTIVES OF THE STUDY

- To assess the existing level of stress among grass root level health workers in experimental and control group
- To evaluate the effectiveness of singing bowl meditation technique on the level of stress among grass root level health workers
- To associate the post-test level of stress with selected demographic variables in experimental group

METHODOLOGY

A quantitative approach with a quasi-experimental pre-test and post-test control group design was adopted among 60 purposively selected grass-root level health workers working in selected Primary Health Centres of Puducherry to evaluate the effectiveness of Singing Bowl Meditation Technique on perceived stress. Standardized Perceived Stress Scale (PSS-10) was used to assess stress, and participants meeting inclusion criteria were assigned equally into experimental and control groups. The experimental group received 15 minutes of guided singing bowl meditation daily for 21 days, while the control group received no intervention during the study period. Pre-test and post-test data were collected, ensuring ethical approval, informed consent, confidentiality, and the right to withdraw. Tool validity was obtained from subject experts, and reliability was

confirmed with an inter-rater reliability score of $r = 0.84$. Data were analyzed using descriptive and inferential statistics (Chi-square and paired t-test) to determine the effectiveness of the intervention.

Nursing Intervention

The Singing Bowl Meditation Technique involved seating the grass-root level health workers comfortably in a padmasana position on a mat, followed by one minute of relaxation and guided 10 cycles of box breathing with closed eyes to achieve a calm state. Participants were instructed to focus on the sound vibrations through seven chakra points—crown, third eye, throat, heart, solar plexus, sacral, and base. The researcher struck the singing bowl once every minute, allowing it to vibrate for 30 seconds followed by a 30-second pause, repeated 11 times for a total session duration of 15 minutes. After the meditation period, the participants were brought back to a relaxed and settled state.

RESULTS:

Tabel 1: Demographic variables of Grass root level health workers.

N=60

Demographic Variables	Experimental Group n=30		Control Group n=30		Chi-Square for homogeneity
	NO	%	NO	%	
Age					$\chi^2=1.735$ d.f=2 p = 0.420 N.S
Between 15 to 20 years	-	-	-	-	
Between 21 to 30 years	18	60.0	13	43.3	
Between 31 to 40 years	9	30	12	40.0	
Above 41 years	3	10	5	16.7	
Gender					$\chi^2=1.019$ d.f=2 p = 0.601 N.S
Male	3	10.0	3	10.0	
Female	27	90.0	26	86.7	
Transgender	0	0	1	3.3	
Ambisex	-	-	-	-	
The habitant					$\chi^2=3.449$ d.f=3 p = 0.327 N.S
Rural	5	16.7	7	23.3	
Urban	7	23.3	12	40.0	
Slum area	12	40.0	8	26.7	
Semi urban	6	30.0	3	10.0	
Religion					$\chi^2=0.988$ d.f=2
Christian	8	26.7	5	16.7	
Hindu	20	66.7	22	73.3	

Muslim	2	6.7	3	10.0	p = 0.610 N.S
Others	-	-	-	-	
Educational status					$\chi^2=2.599$ d.f=2 p = 0.273 N.S
Till high schooling	5	16.7	5	16.7	
Higher secondary	21	70.0	16	53.3	
Undergraduate	4	13.3	9	30.0	
Post graduate	-	-	-	-	
Name of the occupation					$\chi^2=3.985$ d.f=3 p = 0.263 N.S
ANM	13	43.3	9	30.0	
ASHA	11	36.7	13	43.3	
AWW	0	0	3	10.0	
MPW	6	20.0	5	16.7	
Family monthly income					$\chi^2=4.304$ d.f=3 p = 0.230 N.S
Within 10,000	11	36.7	13	43.4	
11,000 to 20,000	11	36.7	6	20.0	
21,000 to 30,000	5	16.6	10	33.3	
30,000 above	3	10.0	1	3.3	
Socio-economic status of the family					$\chi^2=2.964$ d.f=2 p = 0.227 N.S
Lower poor economic status	8	26.7	7	23.3	
Lower middle class	21	70.0	18	60.0	
Upper middle class	1	3.3	5	16.7	
Rich	-	-	-	-	
Traveling distance from home to work place					$\chi^2=5.855$ d.f=2 p = 0.054 N.S
Within 5 km	16	53.4	7	23.3	
6 to 10 km	10	33.3	15	50.0	
11 to 20 km	4	13.3	8	26.7	
Above 20 km	-	-	-	-	
Marital status					$\chi^2=4.510$ d.f=2 p = 0.105 N.S
Unmarried	5	16.7	8	26.7	
Married	25	83.3	19	63.3	
Widow/Widower	0	0	3	10.0	
Divorced	-	-	-	-	

Number of children					$\chi^2=5.957$ d.f=3 p = 0.114 N.S
No child	5	16.7	11	36.7	
Single child	13	43.3	10	33.3	
Two children	12	40.0	7	23.3	
Three or more	0	0	2	6.7	
Type of family					$\chi^2=0.284$ d.f=2 p = 0.867 N.S
Nuclear family	18	60.0	16	53.4	
Joint family	11	36.7	13	43.3	
Broken family	1	3.3	1	3.3	
Extended family	-	-	-	-	
Work experience					$\chi^2=0.808$ d.f=3 p = 0.847 N.S
Recently joined	2	6.7	3	10.0	
One to three years	13	43.3	14	46.7	
Four to seven years	12	40.0	9	30.0	
Eight years above	3	10.0	4	13.3	

The demographic findings showed that most participants in the experimental group (60%) and a considerable proportion in the control group (43.3%) were 21–30 years old, and females predominated in both groups (90% and 86.5%, respectively). A higher proportion of experimental group participants resided in slum areas (40%), while control group participants were mostly from urban areas (40%). Hindus were the majority in both groups, and most subjects had higher secondary education (70% in experimental; 53.3% in control). ANMs were more common in the experimental group, whereas ASHAs were more common in the control group. Monthly family income was mostly below Rs.10,000 in both groups. Most participants belonged to lower middle-class families, traveled within 5–10 km for work, were married, had one or no children, belonged to nuclear families, and had 1–3 years of work experience. All participants were not involved in any stress management therapy prior to the study. Chi-square analysis confirmed no significant demographic differences between the groups, indicating both groups were comparable at baseline.

In the experimental group, participants move markedly from high stress at pretest (70%) to predominantly moderate stress at posttest (96.67%), with high stress dropping to 3.3% and no cases in the low category at either time point. In the control group, the distribution remains relatively stable from pretest to posttest, with most participants in the high-stress range (about 76.67% at both times) and only a small proportion in the moderate category, indicating minimal change without the intervention.

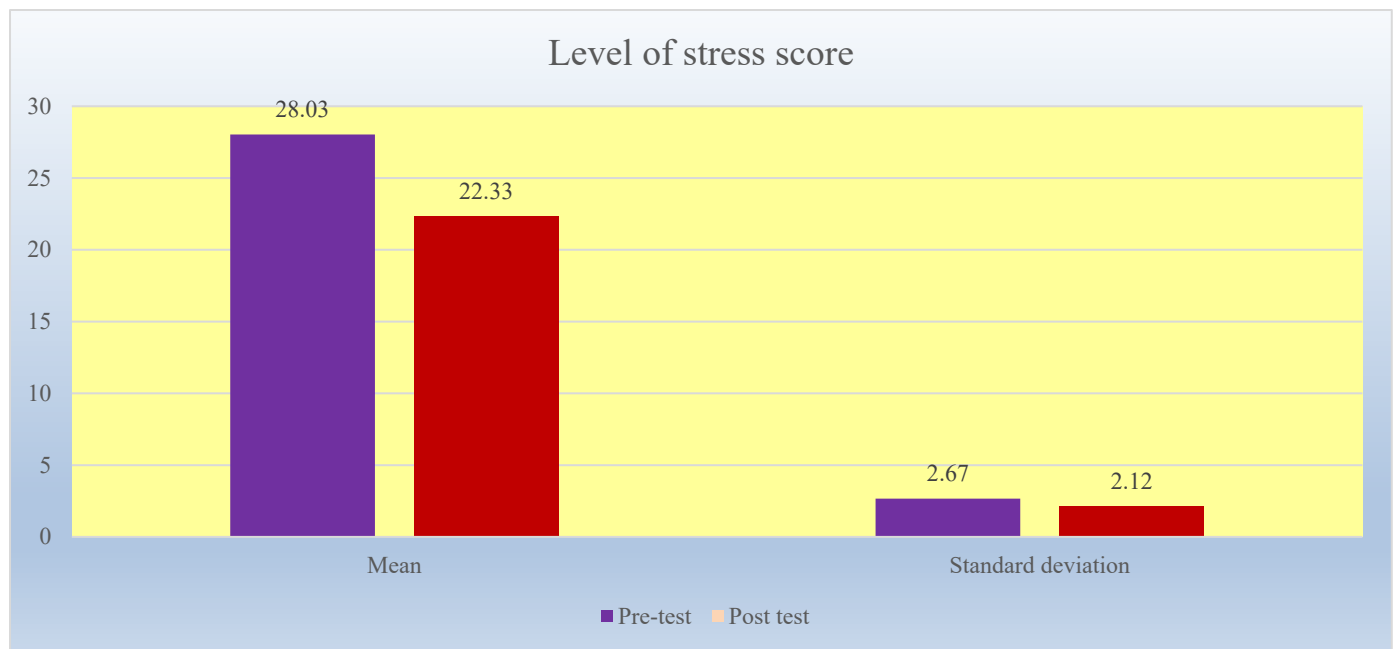


Figure 1: Comparing the effectiveness of singling bowl meditation technique to reduce stress among grass root level health workers in the experimental group.

The experimental group's mean stress score decreased from 28.03 at pretest to 22.33 at posttest, indicating a meaningful reduction in stress levels. The paired t-test demonstrated that this difference was highly significant ($P < 0.0001$), confirming that the change was unlikely due to chance. These results suggest that the singing bowl meditation intervention was strongly effective in lowering stress among grass-root level health workers in the experimental group. (Figure 1)

Table 2: Comparing the effectiveness of singing bowl meditation technique to reduce stress among grass root level health workers between groups.

Level of stress score	Mean	Standard deviation	Independent Paired 't' test	'p' value
Experimental group	22.33	2.12	12.348	$p=0.0001$, S^{***}
Control group	29.23	3.19		

***Significant at $p<0.0001$

The table 2 indicates that grass-root level health workers in the experimental group had a mean post-intervention stress score of 22.33 with a standard deviation of 2.12, whereas those in the control group had a mean score of 29.23 with a standard deviation of 3.19. A paired t-test was used to assess the impact of the singing bowl meditation intervention, yielding a t value of 12.348, which is highly significant at $P < 0.0001$. This statistically significant difference demonstrates that the singing bowl meditation technique was markedly more effective in reducing stress among grass-root level health workers in the experimental group than in the control group.

Table 3: Association of posttest level of stress among grass root level health workers with their selected demographic variables in the experimental group.

Demographic Variables	Moderate		High		Chi-Square & p-value
	NO	%	NO	%	
Age					$\chi^2=0.690$ d.f=2 p = 0.708 N.S
Between 15 to 20 years	-	-	-	-	
Between 21 to 30 years	17	56.7	1	3.3	
Between 31 to 40 years	9	30.0	0	0	
Above 41 years	3	10.0	0	0	
Gender					$\chi^2=0.115$ d.f=1 p = 0.735 N.S
Male	3	10.0	0	0	
Female	26	86.7	1	3.3	
Transgender	-	-	-	-	
Ambisex	-	-	-	-	
The habitant					$\chi^2=1.552$ d.f=3 p = 0.670 N.S
Rural	5	16.7	0	0	
Urban	7	23.3	0	0	
Slum area	11	36.7	1	3.3	
Semi urban	6	20.0	0	0	
Religion					$\chi^2=2.845$ d.f=2 p = 0.241 N.S
Christian	7	23.3	1	3.3	
Hindu	20	66.7	0	0	
Muslim	2	6.7	0	0	
Others	-	-	-	-	
Educational status					$\chi^2=6.724$ d.f=2 p = 0.035 S*
Till high schooling	3	10.0	1	3.3	
Higher secondary	22	73.3	0	0	
Undergraduate	4	13.3	0	0	
Post graduate	-	-	-	-	
Name of the occupation					$\chi^2=3.985$ d.f=3 p = 0.263 N.S
ANM	13	43.3	9	30.0	
ASHA	11	36.7	13	43.3	
AWW	0	0	3	10.0	
MPW	6	20.0	5	16.7	
Family monthly income					$\chi^2=1.787$ d.f=3 p = 0.618 N.S
Within 10,000	10	33.3	1	3.3	
11,000 to 20,000	11	36.7	0	0	
21,000 to 30,000	5	16.7	0	0	
30,000 above	3	10.0	0	0	
Socio-economic status of the family					$\chi^2=6.724$
Lower poor economic	3	10.0	1	3.3	

status					d.f=2 p = 0.035 S*
Lower middle class	25	83.3	0	0	
Upper middle class	1	3.3	0	0	
Rich	-	-	-	-	
Traveling distance from home to work place					$\chi^2=0.905$ d.f=2 p = 0.636 N.S
Within 5 km	15	50.0	1	3.3	
6 to 10 km	10	33.3	0	0	
11 to 20 km	4	13.3	0	0	
Above 20 km	-	-	-	-	
Marital status					$\chi^2=0.207$ d.f=1 p = 0.649 N.S
Unmarried	5	16.7	0	0	
Married	24	80.0	1	3.3	
Widow/Widower	-	-	-	-	
Divorced	-	-	-	-	
Number of children					$\chi^2=1.552$ d.f=2 p = 0.460 N.S
No child	5	16.7	0	0	
Single child	13	43.3	0	0	
Two children	11	36.7	1	3.3	
Three or more	-	-	-	-	
Type of family					$\chi^2=0.690$ d.f=2 p = 0.708 N.S
Nuclear family	17	56.7	1	3.3	
Joint family	11	36.7	0	0	
Broken family	1	3.3	0	0	
Extended family	-	-	-	-	
Work experience					$\chi^2=1.353$ d.f=3 p = 0.717 N.S
Recently joined	2	6.7	0	0	
One to three years	12	40.0	1	3.3	
Four to seven years	12	40.0	0	0	
Eight years above	3	10.0	0	0	
No. of family members					$\chi^2=0.791$ d.f=3 p = 0.852 N.S
3	1	3.3	0	0	
4	16	53.3	1	3.3	
5	11	36.7	0	0	
6	-	-	-	-	
7	1	3.3	0	0	
Daily work (area) travel					$\chi^2=2.845$ d.f=3 p = 0.416 N.S
2	6	20.0	0	0	
3	7	23.3	1	3.3	
4	15	50.0	0	0	
5	1	3.3	0	0	
0	-	-	-0	-	

Have you ever involved in any stress management therapy					
Yes	-	-	-	-	-
No	29	96.7	1	3.3	

The table 3 shows that two demographic variables—educational status ($\chi^2 = 6.724$, $p = 0.035$) and family socio-economic status ($\chi^2 = 6.724$, $p = 0.035$)—have a statistically significant association with the post-test stress levels of grass-root level health workers at the 0.05 level.

DISCUSSION:

In the experimental group, pre-test results showed that 21 participants (70%) experienced high stress and 9 (30%) had moderate stress. Following the Singing Bowl Meditation Technique, stress levels improved markedly, with 29 participants (96.67%) shifting to moderate stress and only 1 (3.3%) remaining in the high-stress category. In the control group, stress status remained unchanged from pre- to post-test, with 23 participants (76.67%) in the high-stress range and 7 (23.33%) in the moderate category at both assessments. The pre-test mean stress score of the experimental group was 28.03 ± 2.67 , which reduced to 22.33 ± 2.12 after the intervention, resulting in a mean difference of 5.70. A paired t-test value of 17.892 at $p < 0.001$ indicated a statistically significant reduction in stress following the meditation technique. Comparison between groups also showed a significant effect, with an independent t-test value of 12.348 at $p < 0.001$, confirming that participants receiving the intervention showed greater improvement than those following routine activities. Previous research by Gunjan Y. Trivedi and Banshi Saboo demonstrated that structured sessions using seven-metal Himalayan singing bowls produced a significant reduction in stress index, supporting their role in promoting relaxation and physiological recovery. Similarly, evidence summarized by Jessica Stanhope and Philip Weinstein highlights that singing bowl interventions can improve emotional well-being and various physiological parameters, reinforcing their potential therapeutic benefits. Overall, the findings establish that Singing Bowl Meditation Technique is an effective non-pharmacological strategy for reducing stress among grass-root level health workers.

CONCLUSION:

The study was conducted among grass-root level health workers who worked in selected PHC at Puducherry to evaluate the effectiveness of singing bowl meditation technique. From the statistical inferences, it is evident that administering singing bowl meditation is highly effective in reducing stress level.

LIMITATIONS OF THIS STUDY

This research study, however, is subject to minimal limitations. Subjects were not in time to the intervention. Researcher felt difficulty in gathering groups at the intervention spot.

RECOMMENDATIONS

A similar study can be replicated in different setting with larger samples to validate and generalize the findings of the study. A similar study can be done among other departments like students, general public, teachers and working personal in various fields for improvement of mental health and effective job outcome.

CONFLICT OF INTEREST:

No

FUNDING SOURCE:

No

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