

Effect of Tele-Guided Imagery on Stress among Caregivers of Chronic Neurological Patients: A Randomized Controlled Trial

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Abstract

Background and Objectives Chronic neurological conditions impose a burden on caregivers as they are a major contributor for disability-adjusted life years of patients. Stress is the common psychological concern of caregivers. This randomized controlled study examined the effect of tele-guided imagery on stress among caregivers of these neurological patients.

Methods Thirty caregivers were selected for participation in study as per the inclusion criteria and were randomly assigned into experimental and control groups. Initial caregivers' mental health screening was performed with the mini-mental state examination tool. For outcome measure, perceived stress scale (PSS) score tool was utilized and both pre- and postintervention scores were noted. Effect of tele-guided intervention was compared with the control group.

Results Significant difference was noted in the PSS scores among the caregivers receiving tele-guided imagery when compared with controlled group caregivers.

Conclusion Tele-guided imagery is an effective tool for stress management among caregivers. Also, it improves the individual's mental health aspect.

Keywords

- ▶ caregivers
- ▶ research
- ▶ neurological
- ▶ stress
- ▶ tele-guided imagery

Introduction

Chronic neurological patients (suffering from any neurological disorder for more than 6 months) impose a global burden as they are a major contributor for disability-adjusted life years of patient, that is, the number of years a patient lives with disability and number of years lost due to disability as per a study in 2016 which increased by 15% from years 1990 to 2016.¹

Caregivers play a major role in a patient's rehabilitation as caregivers are dedicated toward patients' care in terms of providing them support both physically and mentally. Care-

givers can be formal or informal. Informal caregiver can be a close relative, family member, or friend extending their support to patient in their daily activities without having any monetary benefit and they typically spend more than 20 hours a week for caregiving.^{2,3}

As per a meta-analysis performed on the difference between psychological state among caregivers and noncaregivers; it was found that caregivers are more prone to depressive symptoms.⁴

Chronic stress has an impact on an individual's mental and physical health and affects the overall quality of life. Stress affects physiological, hormonal, immunological

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systems and alters individual's behavior and in turn affects the overall quality of life.

Thus, it is important to assess mental health aspect of caregivers, their stress, and quality of and identifying caregivers needs, finding ways for its improvement, and thus, ensuring effective support and quality care is provided to the patient.⁵

Stress can be treated with the help of pharmacological methods and nonpharmacological methods such as changes in lifestyle, exercises, yoga, meditation, and guided imagery.

Guided imagery refers to visualizations with verbal cues, creating an imaginary situation and scene through various stimuli such that individual is fully indulged in the imaginary world or in the given scene or situation such that unconscious mind makes connection with conscious mind and thus impart mental relaxation, self-realization, motivation, and positivity.⁶ This technique induces stress relaxation and reduction in muscle tension, anxiety, and depression management.⁷⁻⁹

Guided imagery is a cost-effective technique which distracts an individual from his current stressful situation and makes him imagine something positive and relaxing. Imagination of natural environment is proven to be provide relaxation, stress reduction, and it brings positive changes in an individual's behavior.¹⁰

Previous studies have suggested that guided imagery is a helpful tool for stress relaxation in caregivers of various psychological patients and geriatric population.^{11,12} Our study aims toward describing the effectiveness of tele (online)-guided imagery for caregivers of chronic neurological patients with significant stress levels. Caregivers in age group of 30 to 45 years with stress were randomly selected for study. Effectiveness was evaluated by pre- and postchanges in the stress levels.

Methods

Thirty informal caregivers of chronic neurological patients from Janki Das Memorial Hospital participated in the study with written consent.² Inclusion criteria include age of the caregiver (30–45 years), age of neurological patient (older than 18 years), dependency on caregiver (Functional Independence Measure Score of care receiver), access to a device with internet connection for online tele-guided imagery sessions on Zoom app.³ Exclusion criteria include any diagnosed mental illness, minimal score examination of caregiver below 24, history of substance abuse, and individuals with visual or hearing deficits. Also, individuals already

practicing any kind of yoga or meditation or having any systemic illness were excluded.¹³⁻¹⁶

Demographic data and initial psychological assessment were taken. Informed consent was obtained from the patient via online mode. Subjects were randomly allocated in experimental and control groups. Experimental group received tele-guided imagery protocol (15–20 minutes session, 5 days/week for 2 consecutive weeks), whereas the controlled group received one session for learning deep breathing exercises for self-administration. The online version of perceived stress scale (PSS) was created by Google Form including informed consent of the participant.

Data Analysis

Statistics were performed using IBM Statistical Package for Social Science (SPSS) software version 23. Analysis was done for 30 subjects who completed the study.

Results

Controlled group consisted of 15 subjects (male = 9, female = 6) with mean age of 35.33 ± 5.71 years and mean minimal state examination (MMSE) score 28.46 ± 1.24 and experimental group consisted of 15 subjects (male = 4, female = 11) with mean age of 33.20 ± 3.91 years and MMSE score 28.46 ± 1.24 .

The comparison of preintervention scores of PSS between the controlled group (mean = 19.06, standard deviation [SD] = 5.68) and experimental group (mean = 22.66, SD = 4.73) showed no significant difference ($p = 0.70$) (→ **Table 1**). The comparison of pre- and postintervention scores of PSS for subjects in group 2 showed significant improvement in their stress level from PSS scoring (p -value = 0.00).

Discussion

The results obtained after comparison of preintervention scores of two groups showed no statistically significant difference. So, both the groups were matched before the intervention; however, in the results obtained after comparison of postintervention scores, significant improvement in the guided imagery interventional group was evident. Bigham et al in a previous study on 29 individuals found that guided imagery has a significant effect on cognitive and emotional stress.¹⁷ Our study in accordance with the previous study proved that guided imagery is beneficial for stress management and in turn improves the quality of life of caregivers who are already

Table 1 Comparison of pre- and postintervention outcome measure scores of experimental and controlled groups

	Preintervention outcome measure		Postintervention outcome measure		t-Value	
	Mean	Standard deviation	Mean	Standard deviation	Preintervention	Postintervention
Experimental group	22.667	4.730	15.06	3.41	$t = -1.85$ $p = 0.07$	$t = 10.926$ $p = 0.000$
Controlled group	19.067	5.687	19.733	4.51		

burdened with the additional responsibilities of the new role. Also, in accordance to the previous studies conducted by Rao and Kemper, our study also turned out to be both feasible and effective.¹⁸ As per the participants of experimental group, guided imagery helped them think about something relaxing, soothing, and helped them skip the current stressful thoughts for that period. By the end of the 2-week span, they were better able to control their thought process and were now able to relax actively with the guided imagery exercise. They felt motivated, cheerful, confident, and self-reliant. As a result, the overall participation of the individual in self-care and patient care also improved.

Limitations

The sample size in this study was small, and therefore, the results cannot be generalized to a larger population. This sample consisted primary caregivers of age group 30 to 45 years. Further, extensive research is required for other age group as well to identify their problems and effect of tele-guided imagery on them. Also, the study was performed for 2 weeks, a more extensive research can be done for longer duration for better results.

Conclusion

Our study is both feasible and effective for stress management among caregivers as measurable changes were produced in the outcome scores, that is, PSS. However, further study is needed for different age groups for further generalization of results on larger population. Also, more extensive research can help in assessing the short- and long-term effects of tele-guided imagery.

Conflict of Interest

None declared.

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