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EFFECT OF A SINGLE BOUT OF GUIDED IMAGERY ON THE SELECTIVE ATTENTION OF COLLEGE STUDENTS

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ABSTRACT

This study investigates whether guided imagery can increase selective attention in students. Researchers studied the effect of imagery on 60 students of the Government. College, Manimalakunnu, Kerala. Students were divided into experimental (N=60, M=15, F=15) and control group (N=60, M=15, F=15). A pre-test using the Stroop test incongruent card was administered to the whole group. The experimental group was given guided imagery training for 10 minutes, whereas the control group was left alone. The posttest was again conducted using the Stroop test incongruent card. Statistical analysis done through ANCOVA revealed that the experimental group had reduced their Stroop reaction time significantly after imagery training. The control group did not show significant improvement in Stroop reaction time. This shows that guided imagery training helps in the increase of selective attention.

Keywords: Selective attention, Stroop test, Guided imagery, College students and Incongruent Card.

INTRODUCTION

Selective attention refers to the processes that allow an individual to select and focus on particular input for further processing while simultaneously suppressing irrelevant or distracting information. Selective attention is an important focus area for the field of education. India accounts for one-fifth of the world's adolescent population. Many factors affect the mental health of adolescents. Major determinants influencing the prevalence of mental health problems in rural adolescents were age, socio-economic status, academic and family environment. Individual factors such as social media usage, physical activity, and substance use also contribute to mental health problems among adolescents.

A Meta-analysis study done by "Sharif S et al. in 2021 from 48 selected papers from Pub med, Scopus, and Science Direct found that healthy students without any mental disorders increasingly use cognitive enhancers (CE's) to increase their mental alertness, memory, and concentration. It was found to be more prevalent among males than females. They get the drugs from their friends, outside agencies, and online. They discussed the need for an

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alternative safe measure to increase cognitive function.

Deepak in 2019 found that meditation has a dual nature of inducing relaxation and increasing cognitive function. The mechanism for meditation-induced enhancement of cognitive function appears to be due to cognitive restructuring, autonomic changes, and the release of cytokines. Recently, it has been shown that the relaxation decreases IL-1 and IL-6. Therefore, reducing cytokines by meditation could explain enhanced cognition.

Felix et al. in 2018 evaluated the effect of relaxation therapy with guided imagery on state anxiety and cortisol in the immediate preoperative period in patients submitted to bariatric surgery by video laparoscopy. They found it an effective nursing intervention for reducing state anxiety and blood cortisol levels in the preoperative period in patients undergoing video-laparoscopic bariatric surgery.

Objectives

- To assess guided imagery's effect on students' selective attention at Government College, Manimalakunnu, Ernakulam.
- To assess the effect of guided imagery on gender-wise selective attention among college students of Government College, Manimalakunnu, Ernakulam.

Scholar selected guided imagery over other relaxation techniques as it is assumed to be interesting for adolescents. It is hypothesized that the experimental group participating in the guided imagery intervention program will score better on the Stroop test (incongruent card).

MATERIALS AND METHODS

The study was conducted over a period of six months using a two-group experimental design. The population was comprise students of Government Arts and Science College, Manimalakunnu, Ernakulam. A sample of 60 first- and second-year B.Com students (30 males and 30 females) was selected using purposive sampling. Data was collected using the score obtained in the incongruent Stroop card. The inclusion criteria include first and second year B.Com students studying in TM Jacob Memorial Government College, Manimalakunnu, Kerala, with normal vision and normal colour vision. Students who were not willing to participate and those with vision problems or colour blindness was excluded from the study.

Data collection process

Data was collected from 60 students (M=30, F=30) of Government College, Manimalakunnu, using the following process. The Stroop color-word test is widely used in cognitive psychology to test selective attention. Here, we used an incongruent Stroop card where the color of the word differed from the word. For example, the word blue is written in red. The students were supposed to name the color of the word and not the word. For example, students have to name a word in red where the word 'blue' is written in red. The incongruent card contained ten words in a column. It had five such columns with

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50 words. The colors used were green, yellow, red, and blue, printed on A4 paper in Times New Roman font size 16. Interference between word meaning and ink color interferes, which prolongs the reaction time.

Subjects must follow the lines loudly, naming out the color of each word as quickly as possible. If a subject finishes all the lines, they can start again. The aim is to complete as many words as possible in 45 seconds. Investigators check for the correct colors called out by the subject. If any color is misnamed, the investigator says 'no', and the subject must correct it before going further. The pre-test was done using an incongruent card for all the participants. The participants were made acquainted with the test and were allowed trials. Each subject was given 45 seconds, and the number of word colors they named was recorded as their score.

After the pre-test, the whole group is divided equally into experimental (n=30, m=15, f=15) and control groups (n=30, m=15, f=15) using the lottery method of simple random sampling technique. The control group was left alone in a room away from the training room to achieve blinding, and the experimental group was given guided imagery training in another room for the next 10 minutes. They were made to sit relaxed with eyes gently closed and were guided virtually through instructions into the rose garden of Munnar, Kerala, India. An effort was made to simulate all five senses of the subjects. Touch was affected by imagining the cold breeze touching their skin. The smell was simulated by the imagination of smelling the rose flower at Munnar Garden. The taste was simulated by feeling the taste of chocolate ice cream enjoyed at the ice cream parlor of the rose garden. The sight was felt by seeing the water droplets on the rose flower. The chirping of birds simulated the hearing. The Guided imagery was done for 10 minutes. Subjects were told to open their eyes. The control and experimental groups were again immediately tested on the incongruent card of the Stroop test, and scores were recorded.

Data were analysis using Descriptive Analysis and Analysis of Covariance to know if the means of the experimental and control groups are significantly different from each other at 0.05 level of significance.

ANALYSIS OF DATA AND RESULT

Results

The demographic and descriptive data and the results of the ANCOVA test are presented here.

Table -1
Demographic Statistics of the subjects

Gender	Students with normal vision	Students with normal vision using spectacles	Students from urban area	Students from the rural area	Total
Male	22	8	2	28	30
Female	19	11	0	30	30

The above demographic data show the number of students with normal vision, those with corrected vision using spectacles, and the number of students

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from urban and rural areas. Normal vision ensures participants can accurately perceive colour-word stimuli without visual deficits confounding results, as uncorrected refractive errors slow reaction times. Spectacle use must be documented and standardised to avoid variability from visual impairment, which is prevalent in rural areas with lower access to eye care. Spectacled subjects were made to undertake the test using their spectacles. This ensured standardisation of subjects.

Table -2
Descriptive Statistics

Dependent Variable	Gender	Post (Stroop Score)		
Group		Mean	Std. Dev.	N
Experimental	Male	49.60	9.723	15
	Female	54.80	9.244	15
	Total	52.20	9.690	30
Control	Male	51.60	9.022	15
	Female	47.33	6.842	15
	Total	49.47	8.161	30
Total	Male	50.60	9.272	30
	Female	51.07	8.847	30
	Total	50.83	8.988	60

The descriptive data show that the post-test total Stroop score of the experimental group is higher than the Stroop score of the control group. The gender-wise post-Stroop score shows that females have done better than males in the Stroop score. Standard deviation of the experimental group, control group and total subjects is also presented above.

TABLE - 3
TESTS OF BETWEEN-SUBJECTS EFFECTS

ependent Variable	ost (Stroop score)					
ource	ype III um of Squares	f	ean Square		ig.	artial Eta Square d
re-Stroop Score	408.822		408.822	06.912	.000	.790
reatment	225.304		225.304	4.375	.000	.575
rror	06.111	5	6.475			
otal	59808.000	0				

Tests of Between-Subjects Effects assess whether differences exist between groups in experimental designs. A significant result (e.g., $p < 0.05$) indicates that the independent variable influences the outcome variable across groups, controlling for within-subject variations. P-value of 0.00 in both pre-stroop score and treatment shows that the intervention was effective.

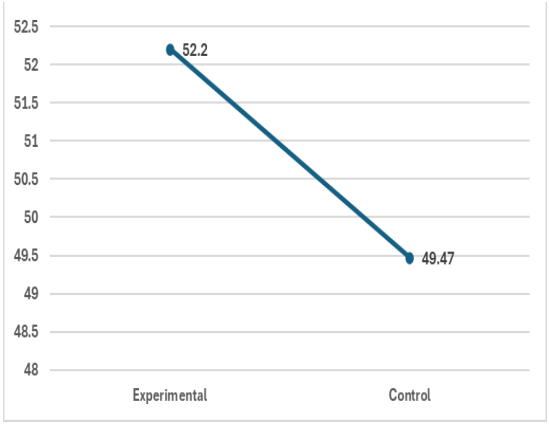

Figure 1. Estimated marginal means of Stroop posttest

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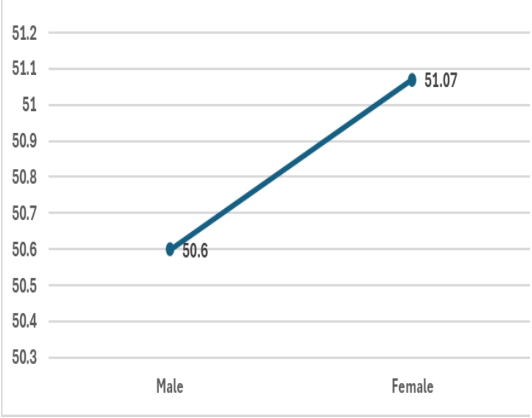

Figure 2. Estimated marginal means of Stroop posttest in gender wise

DISCUSSION OF FINDINGS

The study's primary measure was to assess the effect of guided imagery training on selective attention of students. Secondary outcome measure was to know the effect of guided

indicating better allocation of resources. In Study 2, those assigned to listen to a meditation tape performed an Attention Network Test (ANT) more quickly than control participants, with no detriment in imagery training gender-wise.

"Norris, C. Jet al., in 2018, conducted two studies to investigate the effects of a brief, 10-minute meditation session on attention in novice meditators, compared to a control activity. Using ERPs, they also tested moderation by individual differences in neuroticism and the possible underlying neural mechanisms driving these effects. In Study 1, participants randomly assigned to listen to a 10-minute meditation tape had better accuracy on incongruent trials on a Flanker task, with no detriment in reaction times (RTs) performance. Neuroticism moderated both of these effects. ERPs showed that those lower in neuroticism who meditated for 10 min exhibited a larger N2 to incongruent trials compared to those who listened to a control tape; whereas those higher in neuroticism did not. Together, their results support the hypothesis that even brief meditation improves the allocation of attentional resources in some novices"[6].

In line with the above study, our study also pointed out the beneficial effects of guided imagery on selective attention in participants.

"In a study by Lamers MJ, Roelofs A, and Rabeling-Keus in 2010, response set membership contributes much to the interference in the color-word Stroop task. This may be due to the selective allocation of attention to eligible responses or greater inhibition of distractors that are not responses. They reported two experiments that were designed to adjudicate between these accounts. In Experiment 1, membership was manipulated on a trial-by-trial basis by cueing the possible responses for each trial. Response time (RT) was longer for distractors corresponding to a cued, eligible response than an ineligible one. This cueing effect was independent of the number of different responses. In Experiment 2, the distractor was cued on half the trials. Cueing the distractor decreased RTs on both incongruent and congruent trials. Vincentile analyses in both experiments revealed that the effects were

constant throughout the RT distribution. These results suggest that response set effects arise because of selective allocation of attention to eligible responses".

The above study confirms that the Stroop test can analyze students' selective attention. In our study, guided imagery has helped the students reduce their reaction time and improve their selective attention ability. Thus our study adds to the available evidence.

The secondary outcome measure was to know the effect of guided imagery training gender-wise. The results of our study show that (fig 2) females have performed slightly better than males. We also observed that after imagery training, the experimental group was quite calm and composed. However, no such change was noted in the control group of students who also came for the post-test.

So, it is evident that 10 minutes of guided imagery helped the students with selective attention, and they could cut off distractions and concentrate on correct responses. Guided imagery can be learned very quickly with the help of a voice recorder, initially, one can practice alone.

The strength of the present study is the ease of administration. It only takes 10 minutes to get the desired results for students. Further, being non-pharmacological, this intervention program doesn't have any side effects.

However, we found a few limitations to this study. The present study is conducted on only 60 students from one college. The number is small, and the group is from one geographical area. A large study with a population and a wide geographical area will add more acceptance to the results. Our study was further limited to one episode of 10 minutes of guided imagery for novices. Studies of multiple days of guided imagery and their effects need to be conducted.

Futuristic research can be done on health professionals to know the effect on quality of life and patient care. It is assumed that 10 minutes of guided imagery will enhance patient care amidst all distractions, emergencies, and emotional exhaustion. It could also be adopted as a health policy to start a day with just 10 minutes of guided imagery practice.

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