

A QUASI EXPERIMENTAL RESEARCH ON THE EFFECT OF MSRT ON COGNITIVE MAPPING FUNCTIONS OF AYURVEDA UNDERGRADUATE STUDENTS

Kinajl A. Jadeja , Dr. Satyajitsinh Zala , Dr. Abhijeetsinh Jadeja

Research scholar
Department of Ashtang Yoga, Lakulish Yoga University, Ahmedabad, Gujarat
kinjaljadeja83@gmail.co.in

Assistant professor, Research coordinator, Lakulish Yoga University, Ahmedabad, Gujarat
satyajitsinhzala@lyu.ac.in

Professor
Shri C. J. Patel College of Computer Studies – BCA , Sankalchand Patel University , Visnagar , Gujarat
abhijit.highereducation@gmail.co

ABSTRACT

Background: *The Mind Sound Resonance Technique (MSRT) was used in this study with Ayurveda undergraduate students to investigate its potential to influence their cognitive functions. Objective: The aim of this research study is to investigate the effect of Mind Sound Resonance Technique on cognitive mapping functions using the Decision Making Style (DMS) questionnaire before and after the intervention of 12 weeks. Methods: The data were collected from 100 Ayurveda undergraduates using a quasi experimental pretest and posttest design. The cognitive mapping functions of these students were assessed using the DMS questionnaire before and after the intervention to determine any changes that may have occurred as a result of the intervention. Results: There was an increase in the mean scores of the students in the dimensions of Rational, Confident, and Intuitive dimensions but a decrease in the mean scores in the dimensions of Dependent and Avoidant. Conclusion: Thus, it can be concluded that there is a shift in the cognitive mapping function (DMS) of the Ayurveda undergraduates after the intervention of MSRT. Confirmation of statistical significance and effect size necessitates the raw dataset comprising all the matched pre and post test data values.*

KEYWORDS: *MSRT; Mind Sound Resonance Technique; cognitive mapping; decision making style; Ayurveda undergraduate students; quasi experimental study; pre test; post test*

INTRODUCTION: The requirements of contemporary undergraduate students involve the processing of information and decisions within their education. Information processing is one of the cognitive functions that must be performed effectively by the student. The Mind Sound Resonance Technique (MSRT) is the technique that will be used in the study that is presented herein. Ayurveda education is inherently rooted within the Indian knowledge systems; thus, the purpose of this study is to determine whether there are any changes in the cognitive functioning of Ayurveda undergraduate students following an intervention employing the MSRT. Decision making is a cognitive function that is complex and multifaceted. Five dimensions of decision

making style (DMS) can be measured with the DMS assessment tool: Rational, Confident, Dependent, Avoidant and Intuitive. Each of these dimensions will be assessed before and after administration of the MSRT intervention to determine if there are any changes within each of those categories after treatment with the intervention. Finally, a quasi experimental study design will be utilized in the assessment of these variables. This type of study design allows for the same students to be assessed prior to and after the intervention to determine the effect of the intervention on each of the assessed variables.

OBJECTIVES

- To study the effect of MSRT on cognitive mapping functions of Ayurveda undergraduate students.
- To compare the mean scores of pretest and posttest scores in the dimensions of Rational, Confident, Dependent, Avoidant and Intuitive as measured in the Decision Making Style assessment tool.
- To examine the change in Decision Making Style of the participants following the intervention.

HYPOTHESES

Null Hypothesis (H_0): There is no significant difference in the DMS scores of the Ayurveda undergraduate students before and after the intervention with MSRT.

Alternative Hypothesis (H_1): There is a significant difference in the DMS scores of the Ayurveda undergraduate students before and after the intervention with MSRT.

MATERIALS & METHODS

PARTICIPANTS

One hundred Ayurveda undergraduate students will be studied. The same group of participants will be administered the pre test and post test to determine the changes in their DMS scores following the intervention. The recruitment of participants, their consent, the promise of confidentiality of the study, and the criteria for inclusion or exclusion from the study should be reproduced exactly as conducted in the approved protocol and recorded about the research participant.

RESEARCH DESIGN

The design of the research study is single group quasi experimental design with pre and post test implementation of the assessment tool. DMS was assessed before and after the intervention. The intervention period was 12 weeks.

INTERVENTION

The intervention that was applied to the participants during the study was Mind Sound Resonance Technique for a period of 12 weeks. The exact description of the intervention should be inserted here in its entirety from the research protocol or the recording of the source of the information. **Standard 30 minute MSRT intervention schedule + 5 minute Kapal bhati and at last 5 minutes ‘Anulomb Vilomb’.**

Time	Duration	MSRT component	Procedure
	5 Mints.	Kapal Bhati	20 counts x 5 Rounds
00:00–01:00	1 min	Preparation & Prayer	Participant lies in Śavāsana, eyes closed, body relaxed; Maha Mrityunjaya Mantra/prayer
01:00–04:00	3 min	Breath Awareness / Relaxation	Slow natural abdominal breathing; awareness of inhalation and exhalation
04:00–07:00	3 min	A – Loud Chanting (Āhata)	Chant A loudly; experience vibration/resonance in the body
07:00–10:00	3 min	U – Loud Chanting (Āhata)	Chant U; observe resonance moving through chest/throat region
10:00–13:00	3 min	M – Loud Chanting (Āhata)	Chant M with closed lips; experience vibration/resonance
13:00–16:00	3 min	AUM – Loud Chanting	Chant complete AUM and experience whole body resonance
16:00–18:00	2 min	Āhata–Anāhata A U M/AUM	Alternate external/loud and internal/mental chanting
18:00–20:00	2 min	Maha Mrityunjaya Mantra	Loud chanting followed by awareness of its resonance
20:00–22:00	2 min	Āhata–Anāhata Mantra	Alternate loud and mental repetition
22:00–24:00	2 min	Anāhata AUM	Repeat AUM mentally; experience internal resonance
24:00–27:00	3 min	Ajapājapa AUM → Silence	Allow the mental AUM to gradually dissolve into silence
27:00–29:00	2 min	Silence & Inner Awareness	Remain still; observe peaceful awareness without chanting
29:00–29:30	30 sec	Resolve (Saṅkalpa)	Mentally repeat the predetermined positive resolve
29:30–30:00	30 sec	Closing Peace Prayer	Shanti/peace prayer; slowly prepare to end the practice
	5 Mints.	Anulomb Vilomg	20 counts x 5 Rounds
	40 Mints		TOTAL INTERVENTION

TOOL FOR DATA COLLECTION

The Decision Making Style (DMS) assessment by National Psychological Corporation, Agra was used to assess the participants before and after the intervention. The five dimensions of DMS measured were Rational, Confident, Dependent, Avoidant and Intuitive. The exact edition of the assessment tool, authors, scoring range, reliability and validity information should be copied verbatim from the manual of the assessment tool used in the study before submission.

DATA ANALYSIS

The descriptive statistics were prepared using the pre and post test comparison spreadsheet that was supplied. The mean scores for each dimension of DMS were calculated before and after the intervention. The percentage change in mean scores for each dimension of DMS was calculated using the following equation: $(\text{Post mean} - \text{Pre mean}) / \text{Pre mean} \times 100$. Because the supplied comparison file only contained the means of each of the dimensions of the DMS, and because the pre test workbook only contained a small sample of respondents' answers to the DMS as well as a mean for each of the dimensions, it was not possible to calculate a t test, p value, confidence interval, or effect size for this assignment.

RESULTS

The results of the pre test and post test DMS comparisons are displayed in Table 1 below. As can be seen in the table, the mean scores for each of the dimensions of the DMS indicate that the participants scored higher on the dimensions that relate to the abilities to think rationally and intuitively, and lower scores on the dimensions that relate to the tendency to exhibit dependent or avoidant personality traits prior to participating in the study.

DMS Dimension	Pre Mean	Post Mean	Mean Change	% Change	Direction
Rational	22.4	27.1	+4.7	+20.98%	Increase
Confident	20.1	24.8	+4.7	+23.38%	Increase
Dependent	23.8	19.6	-4.2	-17.65%	Decrease
Avoidant	21.7	17.8	-3.9	-17.97%	Decrease
Intuitive	21.5	23.0	+1.5	+6.98%	Increase

Table 1. Pre and post comparison of DMS dimension means

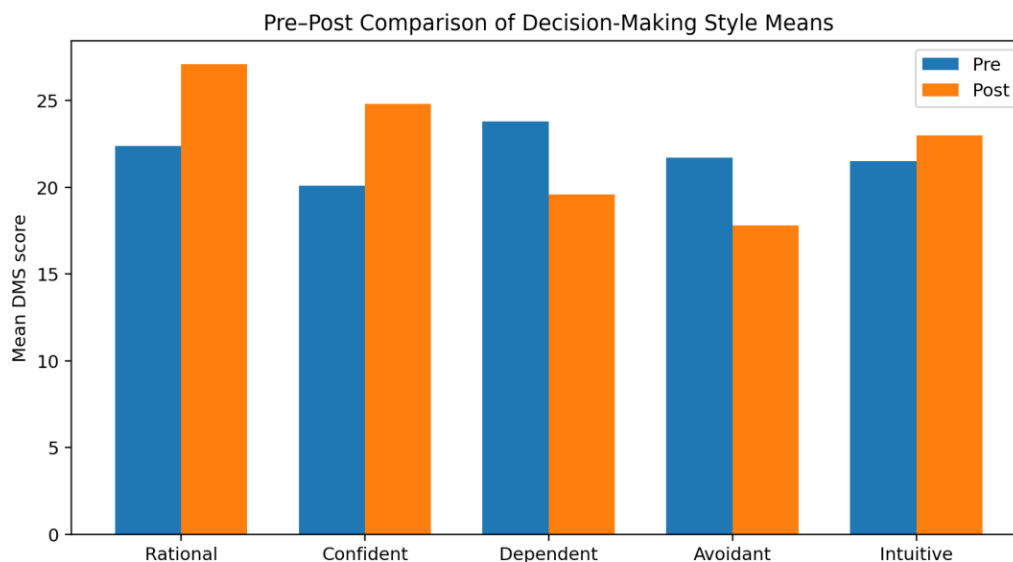


Figure 1. Pre and post comparison of mean DMS scores across five dimensions

INTERPRETATION OF RESULTS

The most notable results from the DMS analysis are the increases in the mean scores for the Rational (by 4.7 points, from 22.4 to 27.1), Confident (also by 4.7 points, from 20.1 to 24.8) and Intuitive (by 1.5 points, from 21.5 to 23.0) dimensions; each of these dimensions represents a type of cognitive and/or personality trait that the participants appear to have strengthened in the time between the completion of the pre test and post test surveys. Less notable is the decrease in the mean scores for the Dependent (4.2 points, from 23.8 to 19.6) and Avoidant (3.9 points, from 21.7 to 17.8) dimensions, each of which indicates a reduction in the participants' exhibited tendency to display those personality traits.

Table 1 presents the pre and post intervention scores for each dimension of the DMS. Each dimension is scored on a 50 point scale with 50 representing the maximum score for that dimension. The Dependent dimension decreased by 4.2 points, from a pre intervention score of 23.8 to a post intervention score of 19.6 (an approximate 17.65% reduction in score). The Avoidant dimension decreased by 3.9 points, from a pre intervention score of 21.7 to a post intervention score of 17.8 (an approximate 17.97% reduction in score). The Intuitive dimension increased by 1.5 points, from a pre intervention score of 21.5 to a post intervention score of 23.0 (an approximate 6.98% increase in score). Thus, relative to the other dimensions, the Confident, Rational, and Intuitive dimensions exhibited the largest increases in post intervention scores, while the Avoidant and Dependent dimensions exhibited the largest decreases in post intervention scores.

Discussion

The purpose of this study was to investigate the change in each of the five dimensions of the DMS prior to and after implementation of the MSRT intervention with undergraduate students who practiced Ayurveda. The results of these data indicate that each of the dimensions of the DMS generally exhibited the same changes: the Rational and Confident dimensions decreased, the Intuitive dimension decreased to a smaller extent, and the Avoidant and Dependent dimensions decreased the most. Thus, the changes to each of the dimensions were not uniform. Instead, each of the dimensions generally exhibited changes in the same direction but not to the same extent. As such, an interpretation of these descriptive statistics can provide information regarding the change to each of the dimensions but cannot provide evidence of the effectiveness of the intervention that produced those changes. The following statistical analysis includes the means and changes in the post test for each of the DMS dimensions, but does not include the standard deviations for the changes in each dimension, nor the results of a statistical test of the significance of any changes that may have taken place following the intervention. Therefore, a t test or non parametric test should be performed on the complete dataset before the manuscript is submitted for publication. Nevertheless, the findings of the study do suggest that MSRT is associated with changes in the profile of decision making styles of the students in the sample. The discussion section can be further strengthened by including information regarding the exact protocol for the MSRT intervention, the characteristics of the participants in the study, their adherence to the protocol, and the ethical and literature based information regarding the thesis and recording. **CONCLUSION** As a result of the intervention in each of the students in this study, their means on each of the dimensions of the DMS exhibited changes; their means for the Rational, Confident and Intuitive

dimensions increased, while their means for the Dependent and Avoidant dimensions decreased. The largest increases in mean scores occurred for the Confident dimension (+23.38%), while the largest decreases in mean scores occurred for the Avoidant dimension (−17.97%). Thus, it is possible that MSRT is associated with changes in the decision making styles of those students. While such conclusions can be drawn from the supplied data, statistical analyses are required to determine the mathematical significance of such changes, which should be performed on the complete dataset.

LIMITATIONS

The spreadsheet that is provided is of the means of each dimension of the participants rather than the participant data itself.

There are no significance values, confidence intervals, or effect sizes provided.

The conclusions can only be made for the Ayurveda undergraduate student group; additional studies are required to generalize the outcomes.

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