

An assessment of selected Yogic and Naturopathic procedures on *Smriti*

Hetal D. Amin¹, Rohit Sharma², Gauravi Vyas³, Kiran Singh³, Hitesh Vyas¹, Mahesh Vyas¹

Abstract

Smriti (memory) is term used to denote a wide array of higher intellectual faculties including memory, cognition, past sense perception, mastery in higher sciences. Nowadays there are many products available in market claiming to increase memory power. According to the scientific researches there are no or very less scopes of increase in memory after certain age. In present era, due to professionalism in every field of life good memory is very important than ever before. Therefore, this study was carried out on 48 healthy volunteers with age between 16-25 years. The objective of present study is to assess memory improving effect in volunteers seeking to improve their *Smriti*. In Group A (*Yoga* therapy) 28 volunteers and in Group B (Naturopathy therapy) 20 volunteers were selected. Weschler's memory scale was adopted to collect data before and after procedures. Mean, standard deviation and wilcoxon signed rank test were used for analyzing the data. *Yoga* therapy group showed moderate improvement in 83.33% volunteers and mild improvement in 16.66% volunteers. Whereas, Naturopathy therapy group resulted moderate improvement in 66.66%, mild improvement in 16.66% and marked improvement in 16.66% volunteers. This study suggests that *Yoga* therapy has an upper edge over Naturopathic treatment in the management of memory loss (*Smritihrasa*).

Key words: *Smriti*, *Yoga* therapy, Naturopathy therapy, memory loss.

Introduction

Smriti (memory) is recalling of our previously recorded experiences [1]. *Smriti* is thus defined as the retention of past experiences in the mind. These experiences are retained in the mind as more impressions *Samskara* and as long as they are present in the potential form, mere impressions are converted into active state in form of mental images that they can be considered as mental functions (*Chitta Vritti*). *Patanjali* has classified *Chitta Vritti* (fluctuation of mind) in to five categories viz. *Pramana* (means of valid knowledge), *Viparyaya* (illusion), *Vikalpa* (imagination), *Nidra* (sleep) and memory (*Smriti*)[2]. The theme of *Patanjali's Yoga Sutra* is cessation of mental functions to unravel true nature of

self [3]. The *Yoga Sutra* has defined memory as a faculty which does not allow experiences received by the senses and the mind to escape from the field of perception.

Naturopathy is based upon the principal of *Panchamahabhoota* (five basic elements of nature). Factors that Naturopathy considers in making a diagnosis include mental, emotional and spiritual state, diet, family history, environmental conditions and lifestyle. Due to *Ahitakara Ahara* and *Vihara* (incompatible diet and inappropriate lifestyle) all *Panchbhautik* elements get disturbed and the vitality becomes lowered. The lowered vitality cannot eliminate the morbid matters and accumulate in channels which can further develop any pathology in the body [4]. *Smritihrasa* (memory loss) is a pathological state in which *Vayu mahabhuta* vitiates and become *Vikrita* (anomalous state). As per *Ayurveda*, *Udana Vayu* (a sub type of *Vayu*) is responsible for *Smriti*, [5] therefore it can be said that if *Vayu mahabhuta* balanced, *Smriti* can be improved.

Keeping all these things in the mind, an attempt has been made to evaluate the impact of *Yogic* and *Naturopathy* procedures for improvising *Smriti*. According to the scholar's knowledge till today self hypnosis, positive suggestions, counselling etc. have been used for the *Chittavritti Nirodha* (to command mental functions) [6]. Therefore, current study is an endeavour to provide simple and effective *Yogic* and *Naturopathic* procedures which can be practised regularly for *Smriti Vardhana* (memory improvement).

Aims and objectives

To evaluate and compare the memory enhancing effect of *Yogic* and *Naturopathic* procedures.

Materials and Methods

Two different modes of treatments were used with specific methodology for carving the entire research work.

The subjects for this study were selected from Maharshi Patanjali Institute of Yoga and Naturopathy Education and Research (MPIYNER), Gujarat Ayurveda

¹ Department of Basic Principles, Institute for Postgraduate Teaching and Research in Ayurveda (IPGT & RA), Gujarat Ayurveda University, Jamnagar, India.

² Department of Rasasashtra and Bhaishajya Kalpana, Institute for Postgraduate Teaching and Research in Ayurveda, Jamnagar, India.

³ Maharshi Patanjali Institute of Yoga and Naturopathy Education and Research, Gujarat Ayurveda University, Jamnagar, India.

Correspondence: Dr. Hetal D. Amin, Ph.D. Scholar, Basic Principles Department, IPGT & RA, Jamnagar, India
E-mail: dr.hetal1985@gmail.com

University (GAU), Jamnagar undergoing a 21 day program. An informed consent was obtained from all participants.

The clinical material comprises the data recorded and investigations carried out in 48 randomly selected healthy volunteers for improvement of *Smriti*.

Inclusion and exclusion criteria

Healthy volunteers between 16-25 yrs age group were selected from the surrounding area of research place without any bar of race, religion and sex.

Volunteers younger than 16 years and older than 25 years age, patients with any type of listed psychiatric disorders, patients with systemic diseases like carcinoma, H.I.V. etc or where memory loss is a symptom of other diseases were not selected for the study.

Assessment criteria

For evaluation of memory (*Smriti*) the Wechsler's Memory Scale (WMS) was adopted ([www.pearsonassessment.com/WMS 3](http://www.pearsonassessment.com/WMS3)) before and after both therapies period of 21 days. The eight subtests of WMS were Verbal Retention for Similar Pair (VRSP), Verbal Retention for Dissimilar Pair (VRDP), Auditory Immediate (AI), Auditory

Delayed (AD), Visual Immediate (VI), Visual Delayed (VD), Auditory Recognition (AR) and Visual Recognition (VR). The final effect was assessed in terms of no improvement, mild improvement, moderate improvement and remarkable improvement. A specific scoring pattern was developed for assessment of effect of both the therapies. The scoring was given to eight tests ranging from 0-5. 0 score; given for all false answers and 5 score for all right answers. To test the concepts clinically, a proforma was prepared before starting the clinical study. Similarly, a separate gradation scheme was also developed to evaluate the intensity of the complaints. The obtained data on basis of observations were subjected to statistical analysis in terms of mean, standard deviation, standard error and t test. (Conceded at the level of $p < 0.001$ as highly significant, $p < 0.05$ or $p < 0.01$ as significant and $p < 0.10$ as insignificant)

Grouping

Selected volunteers were categorized into two group A and group B. Group A is Yoga procedure group and group B is Naturopathy procedure group. Registered volunteers were 28 and 20 in group A and group B respectively. The duration of the study was 21 days and study was conducted in Yoga hall MPIYNER, GAU, Jamnagar.

Table 1: Group A – Yogic procedures taught and suggested to participants

First Week	Min.	Second Week	Min.	Third Week	Min.
<i>Pranadharana</i>	05	<i>Pranadharana</i>	05	<i>Pranadharana</i>	05
Relaxation	05	Relaxation	05	Relaxation	05
Prayer	05	Prayer	05	Prayer	05
Rotation/Stretches	05	Rotation/Stretches	05	Rotation/Stretches	05
<i>Asana</i>		<i>Asana</i>		<i>Asana</i>	
<i>Natarajasana</i>	03	<i>Natarajasana</i>	03	<i>Natarajasana</i>	03
<i>Vrikshasana</i>	03	<i>Vrikshasana</i>	03	<i>Vrikshasana</i>	03
<i>Sarvangasana</i>	03	<i>Sarvangasana</i>	03	<i>Sarvangasana</i>	03
<i>Matsyasana</i>	03	<i>Matsyasana</i>	03	<i>Matsyasana</i>	03
<i>Shavasana</i>	03	<i>Shavasana</i>	03	<i>Shavasana</i>	03
<i>Pranayama</i>		<i>Pranayama</i>		<i>Pranayama</i>	
<i>Anuloma- Viloma</i> (3 rounds)	05	<i>Anuloma- Viloma</i> (3 rounds)	05	<i>Anuloma- Viloma</i> (3 rounds)	05
<i>Bhramari</i>	05	<i>Bhramari</i>	05	<i>Bhramari</i>	05
<i>Bhasrika</i>	05	<i>Bhasrika</i>	05	<i>Bhasrika</i>	05
<i>Shuddhi Kriya</i>		<i>Shuddhi Kriya</i>		<i>Shuddhi Kriya</i>	
<i>Kapalbhati</i>	05	<i>Kapalbhati</i>	10	<i>Kapalbhati</i>	15
<i>Tratak on AUM</i>	05	<i>Tratak on AUM</i>	05	<i>Tratak on AUM</i>	05
<i>Dharna and</i> <i>Dhyana on AUM</i>	05	<i>Dharna and</i> <i>Dhyana on AUM</i>	05	<i>Dharna and</i> <i>Dhyana on AUM</i>	
Prayer	05	Prayer	05	Prayer	05
Total duration	70	Total duration	75	Total duration	80

Observations

Present study was conducted in 48 volunteers of *Smritihrasa*. Observations related to Age (Ayu), Habitate, Marital Status, Mental Status, *Prakriti*, Education, Diet, *Aharashakti* and *Vyayamashakti* are depicted (Figures 1).

Effect of *Yoga* and Naturopathy treatment is described (Table 1 and 2). Statistical data of both groups are described in Table 3. Comparative effect of both groups in different memory tests are illustrated (Figure 2). Overall effect of therapy is demonstrated (Figure 3).

Table 2: Group B (Naturopathic Group)

First Week	Min.	Second Week	Min.	Third Week	Min.
Prayer	05	Prayer	05	Prayer	05
Mud pack on lower Abdomen	10	Mud pack on lower Abdomen	10	Mud pack on lower Abdomen	10
Head massage	10	Head massage	10	Head massage	10
Hot pack on head	10	Hot pack on head	10	Hot pack on head	10
Prayer	05	Prayer	05	Prayer	05
Total Duration	40	Total Duration	40	Total Duration	40

Figure 1: Observational Data.

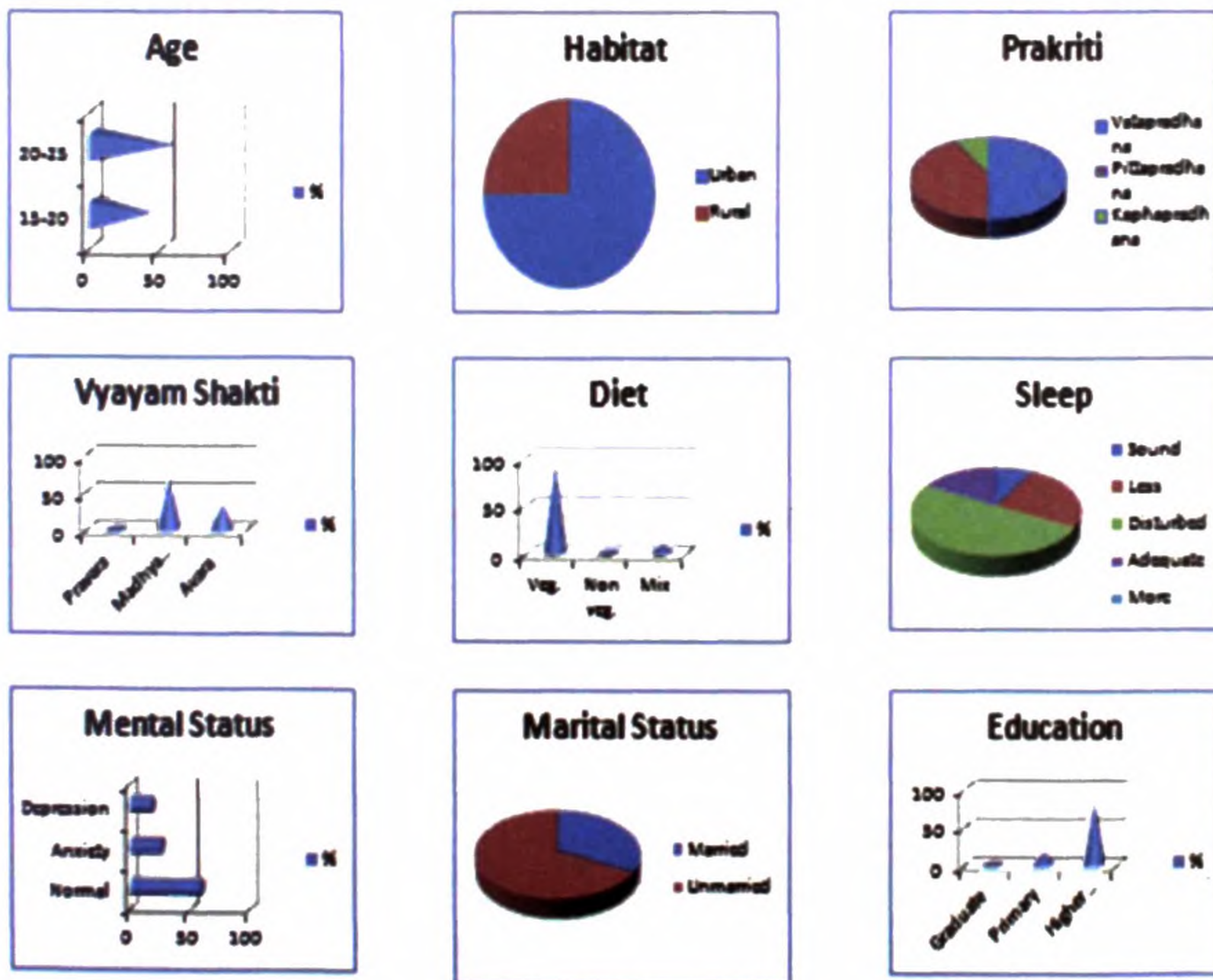


Table 3: Effect of Yoga and Naturopathy therapy on Smriti

Sr. No.	WMS Test.	Mean Score		%	S.D.	S.E	t	P
		GroupA/ GroupB B.T.	GroupA/ GroupB A.T.					
1.	VRSP	3.16/ 3.67	4.83/ 4.67	34.58/ 21.41	1.21/ 1.26	0.49/ 0.51	3.40/ 1.96	<0.01/ <0.10
2.	VRDP	2.51/ 1.33	4.43/ 4.00	43.34/ 66.75	0.75/ 1.03	0.31/ 0.42	5.90/ 6.35	<0.001/ <0.001
3.	AI	2.33/ 3.00	4.83/ 4.33	51.76/ 30.71	0.84/ 1.02	0.34/ 0.42	7.35/ 3.17	<0.001/ <0.01
4.	AD	2.83/ 2.17	4.50/ 4.33	37.11/ 49.88	0.82/ 0.98	0.33/ 0.40	5.06/ 5.42	<0.001/ <0.001
5.	VI	1.83/ 2.83	4.33/ 4.33	57.74/ 34.64	1.22/ 1.05	0.5/ 0.43	5.00/ 3.49	<0.001/ <0.01
6.	VD	1.83/ 2.17	4.17/ 4.33	56.12/ 49.88	0.46/ 1.47	0.19/ 0.6	12.2/ 3.62	<0.001/ <0.01
7.	AR	2.83/ 1.83	4.50/ 4.00	37.11/ 54.25	0.55/ 1.47	0.22/ 0.6	6.82/ 3.62	<0.001/ <0.01
8.	VR	3.67/ 3.00	4.67/ 4.17	21.41/ 28.05	0.89/ 1.18	0.36/ 0.48	2.78/ 3.48	<0.01/ <0.01

Figure 2: WMS Tests results (%)

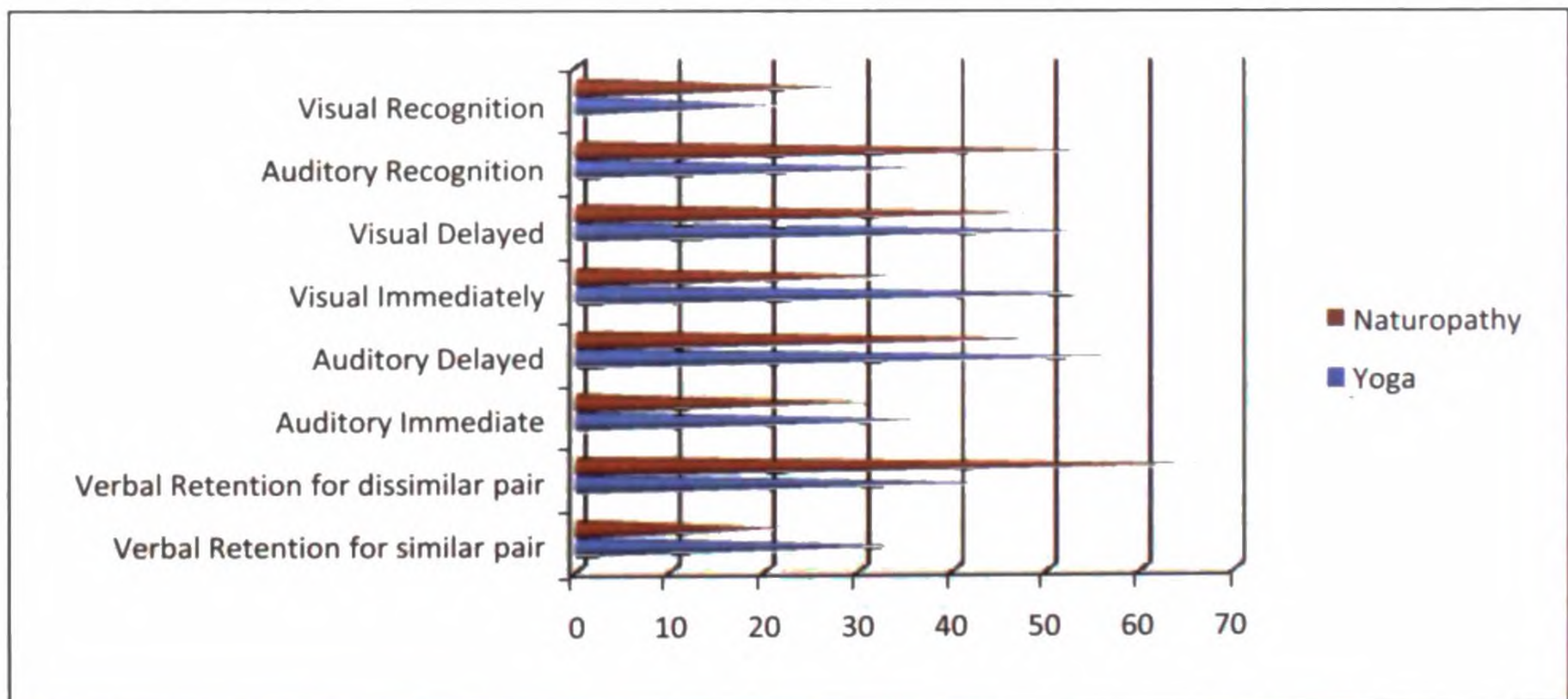


Figure 3: Overall effect of therapy.

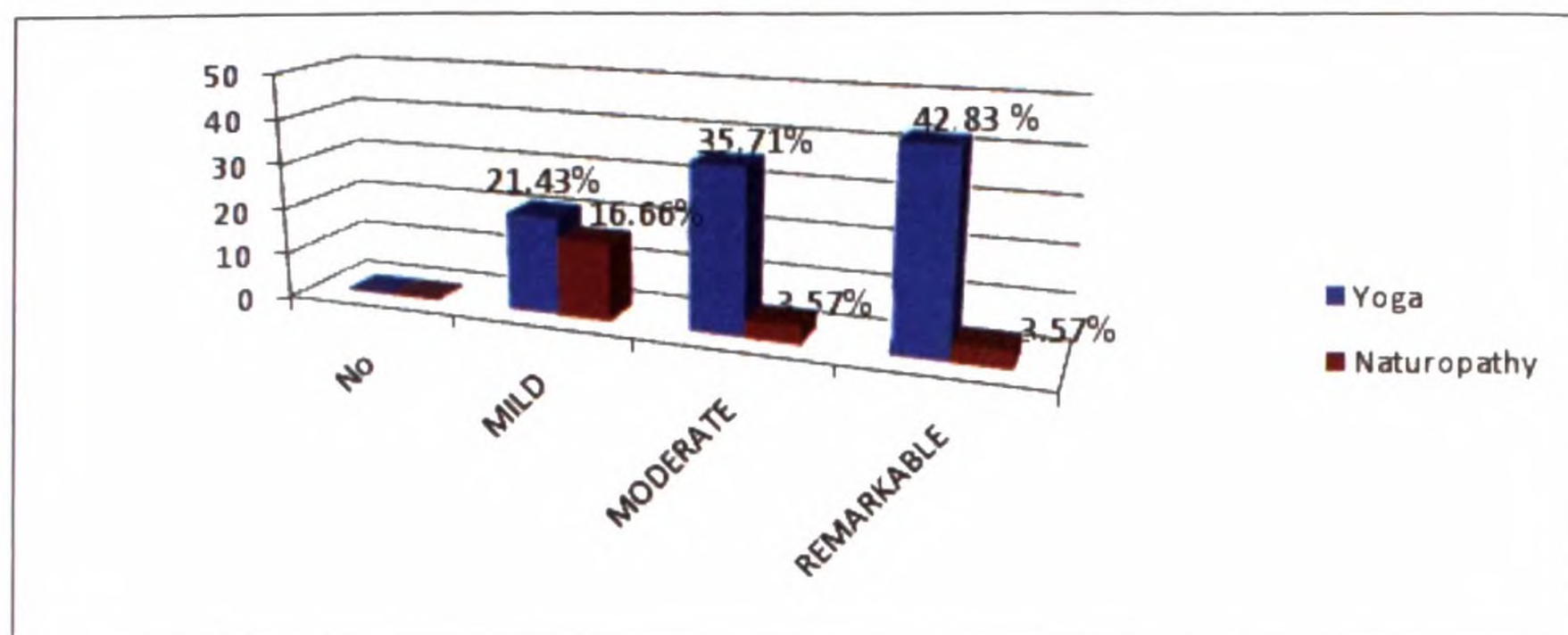


Table 4: Comparative effect of therapy in both the groups on 46 volunteers

Sr. No.	WMS Test	% Improvement		Mean diff.	t	P
		Group A	Group B			
1.	VRSP	34.58	21.41	0.667	0.93	<0.01
2.	VRDP	43.34	66.75	-0.833	-1.59	<0.01
3.	AI	51.76	30.71	1.17	2.15	<0.01
4.	AD	37.11	49.88	-0.50	-0.96	<0.01
5.	VI	57.74	34.64	1.00	1.52	<0.01
6.	VD	56.12	49.88	0.17	0.23	<0.01
7.	AR	37.11	54.25	-0.50	-0.77	<0.01
8.	VR	21.41	28.05	-0.17	-0.28	<0.1

Discussion

Total 48 volunteers were registered for the present study with 28 in Yoga group and 20 in Naturopathy group and all of them completed the treatment course.

Majority of the volunteers i.e. 58% were in the age group of 20-25 years followed by 42% in 16-20 years. This shows the incidence of *Smritihrasa* after the age of 20 years i.e. when the social and familial responsibilities are increased at the psychological plane (Figure 1). All 100% volunteers were Hindu, which is an indication of majority of Hindu population in this region as well as the common social belief in traditional therapies like *Yoga* and *Naturopathy* by Hindu people.

75% volunteers were from urban while 25% were from rural area, which indicate that urban people are more conscious about the *Smritihrasa* and it also indicates that they are more conscious about the *Yoga* and *Naturopathy* treatment (Figure 1). Majority of the volunteers i.e. 67% were unmarried, while 33% were married. Marriage is a social system made for the fulfilment of *Kama* or desires and this has a great impact on the subconscious contentment. The relationship with the life partner plays major role in feelings of happiness and joy. Any derangement in this relationship can ultimately turn into psychiatric disorders (Figure 1).

25% volunteers had anxiety and 17% volunteers had depression, which shows that in present era people are in

stressful condition because of social, economical problems, family disputes or professional competition, which may affect the memory (Figure 1). Majority of the volunteers i.e. 50% were having *Vata* dominant *prakriti* while 42% and 8% were *Pitta* dominant *prakriti* and *Kapha* dominant *prakriti* respectively, which indicate that *guna* (properties) of *Vata* can affect the memory (Figure 1). Education plays a great role in defining the social behaviour and overall personality. Maximum volunteers (83%) were graduate, while 17% had higher secondary. This is suggestive of increasing awareness towards the treatment at all levels of literacy in the society (Figure 1). 92% volunteers were vegetarian, but with improper dietary styles like *Samashana*, *Vishamashana* and *Viruddhashana*. Improper dietary habits lead to accumulation of toxins in the body which further triggers formation of disease according to Naturopathy [7]. Thus, modification of dietary habits is equally important in the management of depression (Figure 1). 50% volunteers were having disturbed sleep, 25% were having less sleep, 17% were having adequate sleep and only 8% healthy volunteers found to have sound sleep. These show that, the mental stress of social life can affect on mind and that play a major role in *Smritihrasa* (Figure 1). *Vishamagni* was observed in 75% volunteers, while *Mandagni* in 25%. *Vishamagni* is related with *Vata dosha* which is the most important factor in the pathogenesis of *Smritihrasa* according to Ayurveda [8]. This finding is suggestive of imbalance of *Vata dosha* in *Smritihrasa*.

All volunteers (100.00%) were lacking any physical exercise. Exercise has a great impact on the physical as well as mental health of a person. It gives strength to the musculoskeletal system and stability to the body and mind also [9]. It develops confidence as well as boost up the *Smriti* (Figure 1).

Effect of therapies

Yoga therapy showed the good result in the memory scale tests as 57.74% improvement Visual Immediately test, 56.12% improvement in Visual Delayed test and 51.76% improvement in Auditory Immediate test. 43.34% improvement showed in Verbal Retention for dissimilar pair while 34.58% improvement showed in Verbal Retention for similar pair. Mild improvement i.e. 21.41% showed in Visual Recognition. These results were found statistically significant in all WMS Scale tests (Table 4).

Two prime physical aims in *Yoga* are *Pranayama* (breathing control technique) and *Asana* (posture), while one of the mental aims is the ability to maintain cognitive control, specifically in the areas of attention, memory and arousal control. One general claim is that *Yoga* helps clear the mind and this may have an effect on the ability to attend to relevant stimuli and recall information subsequently [10]. *Yoga* can prevent memory lapses by calming person and enhancing concentration. It can also improve powers of recall by increasing circulation to brain [11].

Memory span and attention measured before and after *Yoga* training has shown positive changes by *Yoga* training [12]. These results are truly attributed to the positive beneficial effects of *Yoga Asana*, *Pranayama* and meditation on the conscious and subconscious mind. Here, *Asana* i.e. *Vrikshasana* and *Natarajasana* are balancing *Asana* which make one concentrate to any subject and *Sarvangasana* and *Matsyasana* may help in proper blood circulation to the mind and also affect the *Ajna Chakra*. *Yoga Asana* are means to develop self control over the conscious mind and physical activities. In *Pranayama*, breathing with increased awareness helps in maintaining the positive sense of well being and also has therapeutic efficacy for concentration. Meditation i.e. *Dharana* and *Dhyana* aspect make the person more self-conscious, forcing to look into the inside world and helping to find the main aim of life. Further, positive auto suggestions are the tools to modify the thinking process and behaviour turning the life towards positivism. *Yoga* decreases the somatic disturbances by increasing physical strength of the individual. Thus, overall *Yoga* therapy is found more effective in management of *Smritihrasa*.

Naturopathic treatment showed 66.75% improvement in Verbal Retention for dissimilar pair test. 54.25% improvement in Auditory Recognition test and 49.88% improvement in Auditory Delayed test. 34.64% and 30.71% improvement in Visual Immediately and Auditory Immediate test respectively. Mild improvement was found like 28.05% and 21.41% in Visual Recognition and Verbal Retention for similar pair respectively (Table 4).

Naturopathy deals with the living according to the laws of nature. *Nisargopchara* is *Pancha Tattava Chikitsa*. The main aim of the *Tattva Chikitsa* is to prevent and cure the diseased condition by balancing the *Pancha Tattava*, eg. *Akash*, *Vayu*, *Agni*, *Jala*, and *Prithvi*. Mud pack on lower abdomen which is the main site of deposition of morbid foreign matter, the removal of it is facilitated and strength provided helps to relieve the Stress [13]. Oil Massage on head is the best treatment for *Vayu* element. Oil is the best *Vatashamaka Dravya* according to *Ayurveda* [14]. It tones up the nervous system, influences the respiration and quickens the elimination of toxins and waste material from the body through the various eliminative organs [15]. Thus, by all means it helps to clear the channels and also improve the vital energy that may cause improvement in memory. The heating effect of hot pack on head can be considered as an *Agni Tattva Chikitsa* which has the action over *mala* [16] of *Nadis* and they become cleaned. *Smritihrasa* is basically caused by the violation of nature's laws and treatment of a patient by returning towards the nature is the aim of Naturopathy. Thus, it overrules the basic cause of *Smritihrasa*. The above results obtained are due to the relaxation of mind making it free from underlying stress. Head massage and hot pack on head has rejuvenating influence [17] which would be helpful in management of *Smritihrasa*. Although

these effects are less in comparison to *Yoga* therapy, but the possible efficacy of Naturopathy in treating *Smritihrasa* can't be neglected.

Conclusion

Present clinical study has concluded that stress, depression and anxiety as major root causes for *Smritihrasa*. Both *Yogic* as well as Naturopathic treatment show moderate improvement in the management of *Smritihrasa*. In VRSP, AI, VI, VD tests *Yoga* group gives better improvement. Whereas in VRDP, AD, AR and VR tests Naturopathic procedures give better improvement. Therefore it can be concluded that *Yoga* therapy is useful in immediate recall and Naturopathy therapy is useful for long term memory. As the sample size was very small, further studies are required to reassess the results and to explore the concept in those aspects which remained untouched.

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