



**A RESEARCH PROTOCOL ON STUDY THE EFFICACY OF YOGA
MODULE IN THE IMPROVEMENT OF ACADEMIC PERFORMANCE
IN B.A.M.S STUDENTS -OPEN RANDOMIZED CONTROL CLINICAL
TRIAL**

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ABSTRACT

Background: Yoga which is a way of life is characterized by balance, health, harmony and bliss. The science of yoga is a powerful stream of knowledge, which enables the practitioners to achieve. This study aims to evaluate the effectiveness of a structured yoga module in enhancing the academic performance of B.A.M.S. students. Yoga, as a holistic practice, promotes physical, mental, and emotional well-being, which are essential for academic success. The randomized control clinical trial will involve B.A.M.S. students who will be divided into control and experimental groups. The experimental group will undergo a 12-week *yoga module* comprising *asanas*, *pranayama*, meditation, *mudras*, and *bandhans*, while the control group will not participate in any yoga intervention. Data will be collected using specific questionnaires to assess academic performance, memory scores, and intelligence span before and after the intervention. The study will also monitor any adverse effects associated with the yoga module. The primary objectives include evaluating improvements in memory, cognitive functions, and overall academic performance. This research aims to provide empirical evidence on the role of yoga in academic settings, offering insights into its

potential benefits for medical students' cognitive development and stress management. The findings could inform future educational strategies for enhancing academic outcomes through integrative wellness practices.

INTRODUCTION

Yoga which is a way of life is characterized by balance, health, harmony and bliss. The science of yoga is a powerful stream of knowledge, which enables the practitioners to achieve radiant physical health, serene mind, continues spiritual uplift and creates the ability for harmonious social living. Hatha yoga practices like *asanas*, *pranayama*, *kriyas*, *mudras* and *bandhans* are mostly taught as physical practices. Meditation work at the mental level, all these practices are intended to develop a certain type of awareness within oneself, which in turn brings about a change in emotional and visceral functions of the individual take place.^[1] Now a days students use technology like internet, mobile phone and game to gather academic information as well as for entertainment purpose so the students mind is distracted. This insufficient physical activity leads to modern sedentary life style. According to WHO physical activity is defined as way bodily movement produced by skeletal and muscular activity or movement resulting in energy expenditure, increases thinking capacity of brain and protects one self and brain from stress and distracted mind in different field which results in enhancement of academic performance. The yogic vision of education is to lay the foundations of character and personality based on self transformation.^[4]

Yoga is a system of disciplines for furthering an integrated development of multiple aspects of the individual personality. Through asana (physical postures) the body is maintained in a steady and supple state. By practice of pranayama emotional stability, self confidence and self control are developed. Through dhyana(meditation)the turbulent mind is stilled. The practice of yoga creates a balance in the personality.^[5]

The total development of the personality of the students is the main aim of education. This means an integrated development of the cognitive, affective and psychomotor domains. Education is not memorizing some knowledge or developing some skills, but the achievement of the ultimate values of truth, beauty, and goodness.⁷A medical student's academic performance attracts the attention of all those involved in medical education. Many medical education stakeholders are concerned about students' performances as it reflects their various areas of interest. The improvement of students' achievements has always been one of

the main goals of education. Many studies were conducted to identify the factors that affect (positively or negatively) student achievement.^[2]

Identifying those factors and the correlation between them is a very complex process. The student characteristics, their lifestyle, learning environments, and instruction activities contribute to their achievement. We also found that study skills, study habits, study attitudes, and motivation for study exhibit relationships with academic performance. Yoga and meditation also impact on self confidence, self concept and mental health concentration, alertness and memory will improve; anxiety and stress is reduced, therefore it can be effect on academic performance.^[9] Yoga module will help them, stronger and more physically, mentally and emotionally fit. Even though there are several research reports indicating positive impact of yoga on health there are limited research studies exploring effect of yoga on academic performance in B.A.M.S. students. So the present study examines the effect of yoga module on the academic performance of B.A.M.S. students.

Rationalization /Purpose of the study

Academic performance is concerned with the quantity and quality of learning attained in a subject or group of subjects after a long period of instruction. Excessive stress hampers student's performance. Improvement in academic performance and alertness has been reported in several yogic studies. Better motor ability means high level of physical fitness which helps in the positive self-perception and improves the academic performance. The students of today are exposed to far greater stress and trying times than previous generation. Yoga practice will give the proper direction for the betterment in academic achievements and much positive effect for living peaceful life, the violent competition, peace less and rude tries for the betterment of this circumstance and for going on the top. Daily yoga practice has been found to increase student engagement and achievement.⁸ Yoga module will help them cope and emerge stronger and more physically, mentally and emotionally fit. Hence it was motivated to take up the present study. The present study examines whether there is an effect of yoga module on improvement of academic performance in BAMS students.⁹

Previous work done

1. "Effect of yogasana on academic performance of school going students."(Dr.kalidas karak JPESH 2016)
2. "Influence of yoga and meditation on academic achievements of medical students in physiology" (Sheela joice IJP, July-sept 2018,vol.6)

3. "Effectiveness of yoga on memory of learners in secondary level"(Anthony; IJRTE-JAN 2020)
4. "Effect of yoga on academic performance in relation to stress." (kauts and Sharma; International journal of yoga 2009.)
5. "Effect of yoga exercises on achievement, memory and reasoning ability"(Nilesh gajjar; IJRE; vol 2; dec 2012)
6. "Development and validation of a yoga module for children with visual impairment: a feasibility study" (SAGE journals, dec 2018.)
7. "Effect of integrated yoga module on selected psychological variables among women with anxiety problem."(Pubmed.gov 2014.)
8. "Relationship between study habits and academic achievement in students of medical sciences in Kermanshah-Iran" (Dove press 2019.)
9. "Effect of yogic asana on Anxiety and general wellbeing of nursing students."(Int.j.of health sci and research 2018.)
10. "Factors potentially influencing academic performance among medical students." Advances in medical education and practice,(Dove press journaljan 2015.)
11. "study the effects of omkar mantra chanting for concentration during learning in school going children"(dr.kavita kamble thesis 2020)
12. "Development, validation, and feasibility of a school-based short duration integrated classroom yoga module : A pilot study design"(dr. sony kumara 2021 journal of education and health promotion.)

AIM

To study the efficacy of yoga module in improvement of academic performance in B.A.M.S. students

OBJECTIVES

1. To study the improvement in memory score
2. To study the improvement in intelligence span
3. To observe the adverse effect of Yoga module if any occur.

Methodology

This will be Open Randomized control clinical trial study.

Steps of study

1. Specific questionnaire yoga module
2. Specific questionnaire regarding academic performance will be filled by Students before initiation of
3. Yoga Module and after completion of 12 weeks Yoga Module.

Study population

100 B.A.M.S. students.

3. Duration of study :-Duration of the study will 3 month

Sample size^[11]

Sample size calculation formula:

With reference to the book of research methodology, the formula of sample size of finite population is as follows.

$$n = \frac{Z^2}{pq/E^2}$$

$$pq/E^2$$

$$= \frac{1.96^2 \times 50 \times 50}{0.10^2}$$

$$= 96.04 \approx 100$$

Group A-100

Group B-100

Where,

n = required sample size

Z = Statistical level of Confidence-1.96

P = Prevalence rate-50 %

q = 100-p

E = Allowable error (10%)

Sampling technique

Random cluster sampling method will be used. Inclusion, exclusion criteria will be applied to the students. Randomization of students by alternate methods for two groups. Group A :Experimental group. Group B : Control group

Method of selection of study subject**a) Inclusion criteria**

1. Age between 18-25 years.

2. Students will be selected irrespective of gender religion and economically class.
3. Students who will give written consent.
4. The female student will not practicing yoga module in menstrual cycle.

b) Exclusion criteria

1. Students with physical illness, mental disorders, congenital diseases.
2. None of the participants suffering from chronic diseases.
3. Any traumatic condition and recently surgery done.
4. Age<18years and >25 years.
5. Students who will not give written consent.

c) Withdrawal criteria

1. Students absent successively for 1week, will be considered as dropped out from this project.
2. The students are not willing to continue the trail
3. The investigator feels that the protocol has been violated or student has become incorporative.

Data collection methods and instrument -

Total One hundred (100) B.A.M.S. students selected randomly for the study. They will divideinto two groups. One group was utilized as the control group and the other as experimentalgroup. Each group contains one hundred (100) students. The experimental group has been given the twelve (12) weeks yoga training in the college campus. The training schedule was fixed in the morning session minimum time duration 30-45 minutes per session. On the other hand, control group (non yoga group) has not given the yoga training.

1. Written consent of students will be taken
2. Specific questionnaire related to research will prepared
3. Specific C.R.F. will be performed.

Assessment Criteria^[12]

1. Specific questionnaire regarding academic performance will be filled by Students before initiation of Yoga Module and after completion of 12 weeks Yoga Module.
2. Academic exam result will be observed before initiation of Yoga Module and after completion of 12 weeks Yoga Module.
3. Memory Score will be observed by auditory and visual Memory test method
–a) Auditory After taking lecture Oral short question will be asked to students then students will be recalled. b) Visual Chart will be firstly visualized to students for 1 min, then students

will be taken away from this place to another place and write important points of chart as visualized firstly.4. Intelligence span (0 to 5) Different types of 5 Sanskrit Shloka will be told to students then students will be asked to recall those Shloka. How many Shloka will be recalled by students i.e. Intelligence span. If students will be recalled 2 Shloka then Intelligence span is 2.

Sr. No.	Criteria for Assessment	Before Treatment (B.T.)	After Treatment (A.T.)
1.	Specific questionnaire		
2.	Academic Exam Results		
3.	Memory Score Auditory Visual		
4.	Intelligence span		

Overall Assessment Criteria:-

Poor Improvement	25%
Good Improvement	50%
Better Improvement	75%
Best Improvement	100%

Questionnaire

1.	Your attendance in college		
a)	75%-100%	b) 75%-50%	c) 50%-25%
2.	Do you attend all lectures/day?		
a)	Yes	b) No	c) Sometime
3.	Do you asked any difficulty during lecture?		
a)	Yes	b) No	c) Sometime
4.	When studying; what would you like?		
a)	I like to study alone	b) I like to study with colleagues	c) I like to study in groups
5.	When facing difficulties during study what will be your choice?		
a)	Ask a colleague	b) Self directed learning	c) Ask a faculty member
6.	Do you answer the oral questions; which are asked by teacher during lecture?		
a)	Yes	b) No	c) Sometime
7.	In theory exam, do you solved all question?		
a)	Yes	b) No	c) Sometime
8.	How many hours do you spend on sports, movies, music /day?		
a)	<2 hrs/day	b) 3-4 hrs/day	c) >4 hrs/day
9.	How many hours do you spend on social networking/chatting (online)" not related to college work"?		
a)	<2 hrs/day	b) 3-4 hrs/day	c) >4 hrs/day d) I do not use it
3.	How many hours do you sleep per day?		
a)	<6 hrs/day	b) 6-8 hrs/day	c) >8 hrs/day
4.	what types of sleep you observed ?		
a)	disturb sleep	b)complete	c)silent sleep
5.	Do you think practising yoga is good for your health?		
a)	Yes	b) No	c) Maybe
6.	Do you find any noticeable changes following yoga module practice?		
a)	Yes	b) No	c) Maybe

7.	if yes; what are the changes do you noticeable.		
8.	Do you think yoga practice has increased your concentration in studies?		
a)	Yes	b) No	c) Maybe
9.	What is your reason or motivation for taking yoga?		
10.	Do you find that yoga module help your body withstand strain, tension and fight against stress related pain?		
a)	Yes	b) No	c) Maybe
11.	Yoga module is beneficial for academic performances?		
a)	Yes	b) No	c) Maybe
12.	If yes; what are the benefits do you noticeable.		
13.	Yoga module will help in improving academic performance.		
a)	Yes	b) No	c) Maybe

Sr. No	Practices	Name of the practice	Justification of this practice	Duration (minutes)
1	Starting	Prayer	It will detach the person from any external environment for the yoga module	1 min
2	Warm up(yogic sukshma vyayama)	Neck movements (3 round) Shoulder movements (3 round) Trunk movements (3 round) knee movements (3 round) Ankle movements (3 round)	Help to prepare your cardiovascular and muscular sys for workout	5 min
3	Yogasana	a) Standing postures 1.Tadasan(Tree posture) 2.Ardhachakrasan(half wheel posture) 3.Trikonasana (triangle posture) 4.Hastpadasana(hand to the feet posture) b) Sitting postures Ushtrasana(camel posture) 2.Gomukhasana(cowposture) 3.Vajrasana c) prone postures Bhujangasana(cobraposture) 2.Shalbhasana(locustpoatur) d) supine postures Pawan muktasan (wind releasing posture) 2.Naukasana 3.Servangasana 4. matsyasana 5. shavasana (corpse posture)	Improving your concentration and focus. Improves lungs capacity Increases stability, balance and reduce stress Revitalizes the nervous system. Energizes your mind and body Relieves stress and anxiety Become mentally and emotionally strong. Relieves stress and anxiety Relieves stress and fatigue Relieves stress and anxiety Enhance digestion Boost brain functions Helps in blood circulation to the head and relieves stress Calms the mind and reduces stress	Each asana for 1 min
4	Sudhikriya	Kapalbhati (shining skull practice)2 round,30cycle each Bindu Trataka Kriya (gazing meditation)	Boosts the production of endorphins, they helping to uplift of mood Improve vision, concentration, memory.	2min until tears begin
5	Pranayam	Anulom-vilom(Alternate nostril breathing) 5 round	Helps in balancing your emotional energy and get rid of negative	

			thoughts.	
		Ujjayi pranayam(hissing breathing) 5 round	Enhancing memory	
		Bhramari pranayam(bee sound breathing) 3 round	Relief from tension, anger and anxiety	
6	Dhyana	Meditation(transcendental med.) and omkar chanting (5 round)	Increasing patience, tolerance, imagination and creativity.	5min
7	Closing	Shanti mantra	Mind is relieved of its negative feelings, worries, stresses and tension.	1min

Yoga module will be prepared by a yoga expert and the participant's will given training on it for two days before the session began. Each yoga session was conducted for 30-45 minutes, 5days a week, for 12 weeks in the college premises. The experimental group practiced yoga asana (physical training) and meditation (mental training) in empty stomach. Yoga module is used as an intervention treatment for the experimental group for an hour daily in morning for 12 weeks under supervision. Academic performance test is used as a pretest and posttest for the experimental as well as control groups to assess the effect of yoga module on the academic performance of the experimental group and to compare it with the control group, who never practiced yoga module.

Data management and analysis procedure

- Master chart will be prepared.
- Graphical presentation of observation.
- Graphical presentation of observation of symptoms, before and after treatment.
- Graphical presentation of result.

2. Data Analysis Plan and Method Information collected from clinical trial will be presented in the form of chart, table, and graph. All the observed data will be tabulated and analyzed and Wilcoxon Rank test, Paired T test or other appropriate statistical test as indicated will be applied and final conclusion will be drawn

OBSERVATION

Effects of Yoga Module will be observed and analyzed.

RESULTS

Results will be drawn by Statistical analysis of data.

Statistical analysis

1. Specific questionnaire attached – Wilcoxon Signed Ranked test.
 2. Academic Exam Results- Paired T, Unpaired T.
 3. Memory Scorea) Auditory - Wilcoxon Signed Ranked test.
b) Visual - Wilcoxon Signed Ranked test.
- Other Appropriate test will be applied if needed.

DISCUSSION

This will be drawn on the basis of review of literature, material and method, Assessment criteria, Observation, results and statistical analysis.

CONCLUSION

On the basis of discussion and detail study of conclusion will be drawn.

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