

Enhancing awareness of yoga in health professions education students through a single interactive session: A pretest-post test study

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Abstract

Aim and objective: All students enrolled in Health Professions Education (HPE) at Sri Balaji Vidyapeeth, Pondicherry, receive introductory yoga sessions during orientation programs conducted by their respective medical, dental and nursing colleges at the beginning of their first year of training. We conducted a pre-test-post-test study to evaluate initial yoga awareness amongst HPE students (pre-test) and to assess the changes after a single interactive session of yoga theory and practice (post-test).

Material and Methods: 367 HPE students (196 F, 171 M) were divided into seven batches for participation in yoga sessions at the Centre for Yoga Therapy Education and Research (CYTER). The identical, validated Yoga Awareness Questionnaire (YAQ) was given to them before and after the sessions to evaluate the changes in understanding / knowledge about yoga and yoga therapy.

Results: Post-test scores increased significantly ($p < 0.001$) over both pre-test scores. The differences were significant for all batches of the medical, dental and nursing students analysed separately, as well as for the overall comparisons of HPE students.

Conclusion: Even a single interactive session of yoga theory and practice can result in significant improvements in the awareness and knowledge about yoga and yoga therapy, thus setting the stage for future short and long term studies on the benefits for such students.

Keywords: Yoga, Health professions education, Pretest-post test.

Introduction

"All life is Yoga," says Sri Aurobindo,¹ while Dr. Swami Gitananda Giri states that "Yoga is a way of conscious living that enables us to regain our health and happiness!"² It is thus imperative that the life-enhancing art and science of yoga be integrated into the modern health care system if we are to progress from a disease-oriented (pathogenic) to a health-oriented (salutogenic) model of health care.

One of the innovations of our Deemed to be University in Pondicherry, India, is to integrate yoga into Health Professions Education (HPE) in all of its constituent institutions.³ Thanks to the foresight of its management and administrators, the Centre for Yoga Therapy, Education and Research has been functioning within the university since 2010. During this time, this unique centre has provided yoga therapy to more than 43,000 participants in individual and group settings, as well in a larger group salutogenic model at the Mahatma Gandhi Medical College and Research Institute (MGMCRI). It has also worked to combine traditional healing modalities such as yoga with empirical science. As a result, all medical, dental and nursing students of a health care university are receiving theoretical and practical instruction in the application of yoga as a therapy. The authors made a comprehensive search of literature online and no other such studies were found, and hence this may be considered to be happening for probably for the first time anywhere in the world.

This training was introduced as an optional component in the BSc nursing curriculum of our

constituent Nursing College in 2012. Then, in 2016, pursuant to a report from CYTER on the psychological and physical benefits of such training,⁴ it was adopted formally into the curriculum, and 90 hours of yoga therapy education are now imparted during the 3 year course. Yoga was also made compulsory for all medical and dental students of the constituent colleges in 2014 and 2015, respectively.

All HPE students of SBV receive introductory yoga sessions during the orientation programs conducted by their respective colleges at the beginning of their first year. To evaluate the impact of these yoga sessions, this pretest-posttest study was designed to determine changes in the students' awareness of yoga after a single theoretical and practical session at CYTER.

Materials and Methods

Context and participants

This study was conducted at the CYTER of SBV. A total of 367 students (196 F, 171 M), aged 19.05 ± 1.79 (mean \pm SD) years, enrolled in HPE curricula and attending yoga orientation programs participated. There were 243 students (113 F, 130 M) from the MBBS course at MGMCRI, 25 students (23 F, 2 M) from the BDS course at IGIDS, and 99 students (60 F, 39 M) from the BSc (Nursing) course at KGNC. Since all participants were attending the first-year orientation programs organized by their respective colleges, and since yoga awareness was part of these orientation programs, they were recruited for our study by convenience sampling.

Yoga Awareness Questionnaire

We created a 10-item, objectively-structured, questionnaire to evaluate the students' current knowledge of yoga and yoga therapy. This Yoga Awareness Questionnaire (YAQ) was pre-validated by ten experts with vast experience in the fields of yoga, yoga therapy, medicine, psychology and HPE. Responders were required to choose the one correct response from the four provided for each question.

The objectives of the YAQ were:

1. To help students understand the holistic meaning of yoga and to dispel prevalent misconceptions about it.
2. To introduce technical concepts and terminology used in yoga.
3. To enhance understanding of the Ashtanga Yoga of Maharishi Patanjali.
4. To enhance understanding of yoga as a therapy and correct common misconceptions, including the belief that yoga is a "cure all".
5. To introduce widely-used, simple yoga techniques.

Procedure

We divided the 367 students into seven batches for the yoga sessions, since space constraints at CYTER limited class size to 60. Four batches were from MGMCRI, two from KGNC and one from IGIDS. The sessions were carried out in the CYTER yoga hall between 2 pm and 4 pm, in a quiet environment with a comfortable temperature and subdued lighting.

When each batch of students arrived for the session, they were arranged in an organized manner in a sitting position and then instructed to perform quiet, normal breathing with closed eyes for a few minutes. The validated YAQ was then distributed and instructions were given on how to fill it in. At the end of the 15-minute pre-test, volunteers collected the completed questionnaires, and data about correct and incorrect answers were logged in an Excel sheet.

The pre-test was then followed by a 90-minute class that consisted of a short theoretical lecture followed by a practice session led by the lecturer. The lecture included the foundations of yoga history and philosophy, as well as the benefits, strengths and limitations of yoga and yoga therapy. The practice session included basic warm-ups; asanas, such as arthakatchakra, tala, danda, paschimottana and purvottana; and pranayams, such as pranava and bhramari. The session ended with relaxation in shavasana with savitri pranayama.

After the practice session, the students were once again instructed to sit comfortably with eyes closed and perform quiet, normal breathing for a few minutes. A fresh copy of the YAQ (post-test) was then distributed and instructions on how to fill it in were repeated. At the end of this 15-minute post-test, volunteers collected the completed questionnaires, and data about correct

and incorrect answers were once again logged in an Excel sheet. Pre-test and post-test scores were then calculated separately for each student.

Adjusted pre-test scores

Test-takers often correctly respond to multiple-choice questions whose answers they don't really know-in the case of four possible answers, roughly 25 % of the time. To preclude such false positives in our pre-test, adjusted pre-test scores were determined as follows. The pre-test and post-test answers were scrutinized for each responder. If the answer was incorrect in the pre-test and correct in the post-test, then this was considered a true change. If a responder answered correctly in the pre-test and incorrectly in the post-test, it was considered a false positive in the pre-test. The pre-test score of each responder was then revised using this method to yield an adjusted pre-test score.

Statistical Analysis

Statistical analysis of pre-test and post-test scores was done using GraphPadInStat version 3.05 for Windows 95, GraphPad Software, San Diego California USA, www.graphpad.com. Because the data didn't pass normality testing with the Kolmogorov–Smirnov test, the Wilcoxon matched-pairs signed-ranks test was used for pre-post comparisons. P values less than 0.05 were accepted as indicating significant differences between pre-test and post-test scores.

Result

Our results are presented in Table 1 and Fig 1. There was an overall significant ($p < 0.001$) increase in post-test scores over pre-test and adjusted pre-test scores. The differences were significant for all batches of the medical, dental and nursing students when analysed separately, as well as for the overall comparisons of all HPE students combined together for SBV.

Table 1: Comparison of pre-test, adjusted pre-test and post-test scores of a yoga awareness questionnaire answered by students of Health Professions Education (HPE) before and after a single session of yoga theory and practice

Students	(n)	Pre-test	Adjusted pre-test	Post-test
Medical	243	4 (1,8)	4 (1,8)	7 (3,10) ^{***} ###
Nursing	99	4 (0,7)	3 (0,7)	6 (1,10) ^{***} ###
Dental	25	5 (1,8)	4 (1,7)	7 (4,10) ***###
Overall HPE	367	4 (0,8)	4 (0,8)	7 (1,10) ^{***} ###

Values are given as median (range). *** $p < 0.001$ by Wilcoxon Matched-pairs Signed-ranks Test for comparisons between pre-test and post-test scores.

$p < 0.001$ by Wilcoxon Matched-pairs Signed-ranks Test for comparisons between corrected pre-test and post-test.

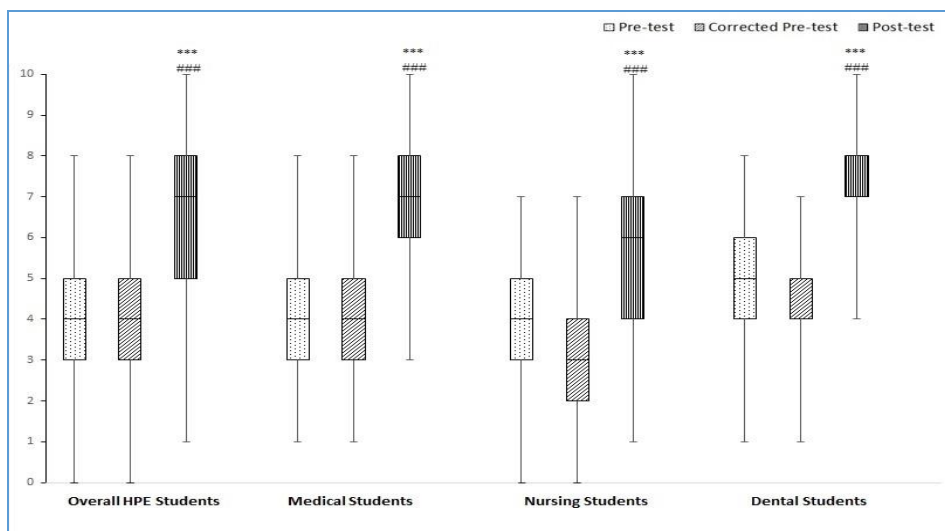


Fig 1: Comparison of pre-test, adjusted pre-test and post-test scores of a yoga awareness questionnaire answered by overall HPE (n=367), first year medical (n=243), nursing (n=99), dental (n=25) students before and after a single session of yoga theory and practice

Values are given as median (range).*** $p < 0.001$ by Wilcoxon Matched-pairs Signed-ranks Test for comparisons between pre-test and post-test scores. ### $p < 0.001$ by Wilcoxon Matched-pairs Signed-ranks Test for comparisons between corrected pre-test and post-test.

Discussion

It has been stated that yoga enables the individual to attain and maintain a balance between exertion and relaxation, and that this results in a healthy and dynamic state of homeostatic equilibrium.⁵ It has also been suggested that a healthy life can be considered a by-product of practicing yoga, since yoga practitioners are often physically and mentally healthier than the population as a whole and cope with stress better.⁶ Nonetheless, few HPE institutions have introduced yoga into their curricula--despite the ancillary function of health care providers to act as role models for healthy living. SBV thus represents an innovator in this regard, having introduced yoga into its HPE curricula in a comprehensive manner.

It is important to evaluate the immediate, short-term and long term benefits of such innovations, and this study represents a simple and effective evaluation of the immediate effects. The pre-test-post-test format promotes understanding of the changes arising from any intervention and allows health professionals to quickly grasp the effects of specific interventions.⁷

Before the session, participant awareness about yoga was on the lower side for all streams (median of 4; range of 0 to 8). Dental students scored slightly higher

(median of 5; range of 1 to 8), although the smaller batch size may also have skewed the results. As evidenced in all batches and streams, even a single session was able to nearly double the pre-test scores to a post-test median of 7, with a range of 1 to 10. This dramatic, across-the-board increase demonstrates the appropriateness of the single session course design for all HPE students, irrespective of their particular stream. Moreover, the differences between pre-test and post-test were comparable to those between adjusted pre-test and post-test, thus implying that the true transferral of knowledge was significant.

As suggested by Henderson, "creating a climate of interest and motivation" is a strong psycho-social factor that influences learning in students. Keeping this factor in mind, we took pains to conduct the sessions in a lively and student-friendly manner.⁸ If students are not brought together with the subject matter in a manner that induces the 'spirit of learning,' it is more likely that teaching efforts will be in vain. Hence our instructors need to be trained to use such a positive, motivating approach if we are to succeed in our endeavour.

In the student feedback compiled by the colleges, the yoga sessions received ratings of 84% excellent, 15% good and 1% average. Personal responses from the students on their experiential learning and transformations through the sessions were also compiled, and these comments were also generally very positive (Table 2).

The Government of India is attempting to build bridges between the traditional systems of AYUSH and modern allopathic medicine. ⁽⁹⁾We who support these

efforts can make a contribution by identifying the "best practices" for integrating yoga into the educational training of health professionals. This study is one of the first to provide evidence in this regard, and the authors hope that it will stimulate further research in the near future. If even a single session of yoga theory and

practice can produce such dramatic immediate improvements in awareness and knowledge about yoga, then short and long term benefits may also reasonably be expected. Studies that seek to identify and quantify these benefits for HPE students are therefore likely to bear a rich harvest.

Table 2: Personalized feedback from students to the yoga sessions

- a. Really helpful and felt relieved from stress and tension.
- b. Gave us a refreshing feel.
- c. Awesome class and we are looking forward to more.
- d. Was a good stress relieving session.
- e. Had a good experience though it was a bit challenging initially.
- f. It will be useful if we practice it regularly. Thank you for these classes.
- g. So helpful as I felt refreshed and my mind was relaxed.
- h. It was a very good experience.
- i. The stretching exercise was especially very useful for me.
- j. This yoga session was very useful. And for me, I enjoyed doing it.
- k. Thank you for this wonderful experience.
- l. Very useful sessions involving various relaxation techniques required by us in our day to day activities.
- m. Sessions involves several stretching exercise required for body functioning.
- n. The yoga classes have been very useful to reduce my stress and anxiety.
- o. Looking forward to more classes in the future.
- p. The practice was very easy and comfortable to do, they are also very useful.
- q. Yoga is meant for relaxation of mind, body and soul. It is the best therapy for everybody.
- r. Yoga therapy was very interactive session in which I learnt many breathing techniques and Asana.
- s. I learnt many new things about yoga which I didn't know before.
- t. Yoga relieve us from both physical and mental stress.
- u. It makes us feel free and energetic.
- v. The yoga session was helpful and energetic.
- w. Yoga is very useful. No negative feedback. Thank you so much sir.
- x. It gave a very good time to relax and loosen our body. Since, we are hostlers we had no physical exercise but this gave us some. I hope this continues every week.
- y. The session was useful and informative.
- z. The exercise and pranayama taught were explained properly.
- aa. After the yoga class I felt good, and also found it very interesting.
- bb. Shavasana is really good. I liked it very much.
- cc. It was very essential.
- dd. I felt some silence inside my body.
- ee. I felt very fresh and enthusiastic.
- ff. A nice kind of relaxation.
- gg. I felt really good.

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