

Development and Feasibility Testing of a Brief Yoga Module on Well-being and Cognition of Postgraduate Mental Healthcare Students in Tertiary Settings

Abstract

Background: Mental health-care students experience stress and burnout during their training period. Yoga has been found to be helpful in improving one's mental health and well-being. **Aim:** The aim of this study is to develop and test the feasibility of a brief yoga module for postgraduate mental health-care students. **Methods:** A mixed method design was used. Phase I involved development and validation of the yoga module using the qualitative exploratory method. Phase II tested the feasibility of the module on a sample of 28 first-year postgraduate students. These students participated in a 15-day (30 min/day) brief yoga module for improving their well-being and cognition (mirror neuron activation [MNA] and tower of London task as assessed on day 0, day 15 (2 weeks), and day 30 (4 weeks)). Qualitative feedback of the student volunteers was also recorded. **Results:** Significant improvement in the well-being scores was observed in the students who adhered to the yoga practice after 2 weeks and 4 weeks. Functional near infra-red spectroscopy (fNIRS) data indicated that adherents showed significant activation of left somatosensory region of the brain and deactivation in the right primary somatosensory region during the static and active phase of the MNA task, respectively. Adherent group showed significant improvement in reaction time during "Zero-Moves" tasks of Tower of London. The qualitative thematic analysis showed that the module helped improve the well-being and mental health of the students. **Conclusion:** The yoga program was found to have high need and medium to high feasibility. A systemic integration of student well-being-oriented interventions including yoga in the curriculum of postgraduate mental health-care courses is advocated.

Keywords: Brief yoga module, feasibility testing, mental health-care students, mirror neuron activation, well-being

Introduction

Health-care students experience significant stressors during their professional training.^[1,2] Research depicts that nearly 59% of professional health-care students in a tertiary care teaching hospital were found to have psychiatric morbidity.^[3] Higher stress rates are correlated to dysfunctional coping strategies, exhaustion, and psychological morbidity.^[4] Professional education can have a negative impact on the emotional well-being and academic performance of health-care students. The stressors of health-care training and its associated negative consequences (mental, emotional, and physical health) have been studied in various disciplines for undergraduate health-care students and university students, but studies are limited

in postgraduate health care or university levels.^[5] Mental health-care professionals such as mental health social workers, clinical psychologists, nurses, etc., are said to experience greater mental health problems such as stress, burnout, emotional exhaustion, and depersonalization.^[6-8] This suggests a need for culturally appropriate psychosocial interventions to support the mental health of health-care students to enable them to complete their training successfully.

Yoga and meditation has been a proven and validated mode of intervention for various forms of stress and mental health problems across different populations.^[9] Yoga was found out to be effective in decreasing stress and improving general well-being in

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medical students.^[10] Research suggests that interventions, including yoga, mindfulness, and mind-body skills training, may be helpful in building the self-awareness and resilience needed for medical students, residents, and established physicians to mitigate burnout risk.^[11] Improvement was reported following the yoga-based Resilience, Integration, Self-awareness, Engagement (RISE) program for front-line professionals including health-care workers in their psychological health domains such as mindfulness, stress, resilience, affect, and sleep quality.^[12] A study by Prasad et al.^[13] reports reduced stress levels and improved sense of wellbeing after 6 weeks of yoga and meditation in medical students. An in-progress study by Khalsa S.B. et al. (ClinicalTrials.gov, Identifier: NCT03687450) on their onsite 6-week yoga-based RISE program in resident physicians observed improvements in total burnout, work exhaustion, interpersonal disengagement, stress, resilience, mindfulness, and sleep disturbance (unpublished results).

Yoga has been long culturally accepted in India and is feasible to implement as part of life-style change for improving well-being of individuals. In this context, the research team developed and validated a brief yoga module for postgraduate mental health-care students that could be practiced during their training period. The proposed intervention was envisaged as a health promoting activity that would help the mental health-care postgraduate students in strengthening their innate coping mechanisms and improving their well-being.

Methods

This study was a nonfunded pre-doctoral research study. It was reviewed and approved by the Institute Ethics Committee, at National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru. The study was registered as a clinical trial under the Central Trials Registry-India (CTRI-REF/2019/12/030163). Written informed consent was obtained from the mental health-care students who volunteered to participate in the study.

A mixed method approach was adopted for this research study. An exploratory research design was used to develop the yoga module and a quasi-experimental prepost research design was applied for testing the feasibility of the yoga module. The research was conducted in two phases: (1) Phase I involved the development of the brief yoga module for well-being and (2) in Phase II, the developed Yoga module was tested for its feasibility on postgraduate mental health-care students.

Phase 1: Development and validation of brief yoga module

The researcher reviewed traditional (*Patanjali Yoga Sutra* and *Hatha Yoga Pradipika*) and contemporary yogic texts. Published literature on yoga interventions for students in India and abroad was also reviewed. These studies

used different yoga modules such as, the Morarji Desai National Institute of Yoga Module for Students, the Swami Vivekananda Yoga Samsthana Module for students and the Positive Health Module of Yoga Appreciation Course in NIMHANS. The existing yoga modules for students were compiled and a list of 92 practices consisting of loosening practices, Asanas, Pranayama, Relaxation, Meditation, and Mantra Chanting were prepared. The practices were then scored by validators ($n = 8$) based on criteria: (a) Easy in level of learning, (b) self-practice in short time, and (c) able to provide relaxation and well-being. Practical and qualitative inputs for validation of the module were obtained from the experts; such as the duration, number of rounds of each practice, similarity in certain practices, order and modifications within the practice to accommodate the criteria and time duration of the module. The content validity ratio (CVR)^[14] was applied to finalize the module and practices. A CVR value of 1 denotes that the retained yoga practices were “essential.” Seventy nine yoga practices which had a CVR scores lesser than 1 and had unfavorable qualitative comments from the validators were removed from the yoga module list. The final brief yoga module for postgraduate mental healthcare students was deduced to 13 practices in total requiring 30-min duration [Table 1].

Phase 2: Feasibility testing of brief yoga module for postgraduate mental health-care students

The brief yoga module for mental health-care students was advertised among new students inducted into NIMHANS during the academic year 2019–2020. For this purpose, a flyer was prepared with the details of the Brief Yoga Module and distributed during the induction of the 1st-year batch. The students were also informed regarding the module, the research study and its objectives by the researcher through

Table 1: Brief yoga module for postgraduate mental health-care students

Selected practices (rounds)	Duration
Ankle stretch breathing	30 s
Side bending	1 min
<i>Vrikshasana</i>	1 min
Tiger breathing	1 min
<i>Bhujangasana</i>	30 s
<i>Pavanamuktasana</i>	30 s
<i>Setu Bandhasana</i>	30 s
QRT in <i>Shavasana</i>	3 min
<i>Nadishodana Pranayama</i>	5 min
Full yogic breath (5 rounds in the ratio 6:4:8:4; breathe in - 6 counts, hold - 4 counts, breathe out - 8 counts, hold - 4 counts)	5 min
<i>Bhramari Pranayama</i>	3 min
<i>Nadanusandhana</i> (3 rounds each of “AAA”, “UUU”, “MMM” and “AUM”)	4 min
Guided meditation	5 min
QRT: Quick relaxation technique	

personal telephone call, E-mails, and WhatsApp messages. Students who confirmed participation were added to a WhatsApp group created with the objective of sharing information and updates regarding the Brief yoga module. The convenient time for conducting the module was discussed with the members of the group. The recruitment was done in two batches: The first batch consisted of 17 students who attended the 15-day brief yoga module and the second batch consisted of 15 students, of which 4 were repeaters from the first batch.

The module was conducted at the Department of Integrative Medicine, NIMHANS under the supervision of a trained yoga therapist. It was for duration of 15 days and each session was for a duration of 30 min.

The students were assessed before and after the practice of 2-week yoga module on wellbeing, using the Warwick-Edinburg Mental Well-Being Scale^[15] on day 0, 15 and 30; while continuous functional near infra-red spectroscopy (fNIRS) recording was performed during Scarborough Tower of London (STOL) task (to assess executive functions) and mirror neuron activation (MNA) task (to assess MNA) on day 0 and day 15.^[16] A qualitative interview was also conducted before their enrolment into the program (to understand the expectations from the program and reasons for participation) and after completion (Feedback on the module, trainer, perceived benefits/adverse effects, facilitators, and barriers in attending the programme). The sociodemographic details of the students who participated in the brief yoga program are indicated in Table 2. Those who attended at least 50% of the sessions,^[17] i.e., a minimum of 8 out of 15 sessions conducted, were considered as adherent ($n = 13$) and the remaining were considered to be under the nonadherent group ($n = 15$).

Data were analyzed using the Statistical Package for the Social Sciences (IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY, USA: IBM Corp). The sociodemographic data were analyzed using the descriptive statistics; the outcome variables were analyzed using nonparametric statistics; Mann-Whitney to understand the group effects, Friedman Chi-square test with Bonferroni correction to understand time effects and Pearson's correlation to understand the correlation between outcome variable well-being and the socio-demographic data. The qualitative feedback was content analyzed using thematic analysis and triangulated with the quantitative results to assess the feasibility of the module (Braun and Clarke, 2006)^[18].

Results

The brief yoga program was conducted for 15 days with a total of 28 participants, out of which 13 were adherent and 15 were non adherent. There were no sociodemographic differences between the adherents and nonadherents.

The nonparametric test of Friedman's Chi-square test with Bonferroni correction showed that students who adhered to the yoga module improved in their well-being scores over a period of 30 days (χ^2 : 12.46, $P = 0.002$, significance post Bonferroni correction $P = 0.017$) as compared to those who were nonadherent from the study ($\chi^2 = 4.792$, $P = 0.091$) [Table 3].

The Wilcoxon signed-rank test which was conducted for *post hoc* analysis showed that the adherent group had a significant difference in their well-being scores between the period of starting (Day 0) of the brief yoga module and the end of the module, i.e., Day 15 ($Z = -2.936$, $P = 0.003$); however, there was no significant difference in well-being scores post completion of the module (Day 15-Day 30: $Z = -1.135$, $P = 0.256$).

The fNIRS results indicated that adherents as compared to nonadherents showed significant deactivation of left somatosensory region (Channel 5) and activation of right primary somatosensory regions (Channel 10) of the brain during the static and active phase respectively of the MNA task. Significant improvement was noted in the reaction time for "Zero-Moves" phase of the S-TOL task.

The qualitative data derived from the interviews brought out a total of 37 themes and 51 subthemes [Table 4] in the areas of reasons for participation, expectations from module, regarding pace and length of module, helpful factors about the brief yoga module and facilitator's style, unhelpful factors about the brief yoga module and facilitator's style, impact of brief yoga module for well-being, what students valued most regarding the brief yoga module, factors that helped in attending module regularly, barriers in attending the module sessions regularly, improvements to the module, barriers for self-practice of the brief yoga module, factors that affect well-being as a postgraduate mental health-care student, suggestions on what students perceived as helpful to promote well-being of postgraduate mental health-care students. Majority of the participants felt that the brief yoga module was "adequate" and 82% rated the intervention program as "good." 41% of the students reported that the most valued aspect of the program was the experience of going through yoga. The students recommended the brief yoga module for all batches of postgraduate mental health-care students in the institute.

Discussion

The goal of this mixed-method quasi-experimental study was to develop and test the feasibility of a brief yoga module for the well-being of the postgraduate mental health-care students in tertiary settings. For this, the study looked at the experiential account and inputs of the students who participated in the module apart from quantitative outcome measures such as well-being and

Table 2: Sociodemographic details

Variable (categorical)	Adherent, <i>n</i> (%)	Nonadherent, <i>n</i> (%)	$\chi^2/U^{\#}$	<i>P</i>
Gender				
Male	7 (53.8)	3 (20.0)	3.475	0.062
Female	6 (46.2)	12 (80.0)		
Course				
MPhil in PSW	7 (53.8)	9 (60.0)	0.108	0.948
MPhil in CP	3 (23.1)	3 (20.0)		
JR/MSc Nursing	3 (23.1)	3 (20.0)		
Batch				
Yoga Batch 1	5 (38.5)	9 (60.0)	1.292	0.256
Yoga Batch 2	8 (61.5)	6 (40.0)		
Yoga experience				
Irregular	8 (61.5)	6 (40.0)	1.292	0.256
Not Started	5 (38.5)	9 (60.0)		
Diet				
Vegetarian	3 (23.1)	1 (6.7)	1.532	0.216
Mixed	10 (76.9)	14 (93.3)		
Substance use				
Yes	3 (23.1)	2 (13.3)	0.451	0.502
No	10 (76.9)	13 (86.7)		
Mental health activities				
Yes	2 (15.4)	7 (46.7)	3.125	0.077
No	11 (84.6)	8 (53.3)		
Physical health activities				
Yes	2 (15.4)	6 (40.0)	2.068	0.150
No	11 (84.6)	9 (60.0)		
On regular medication				
Yes	2 (15.4)	5 (33.3)	1.197	0.274
No	11 (84.6)	10 (66.7)		
Age	25.46 (2.54)	25.47 (2.88)	83.50 [#]	0.509
Years of education	18.00 (0.00)	18.20 (0.56)	78.00 [#]	0.177
Hours of working	10.54 (2.22)	10.70 (1.98)	95.50 [#]	0.924
Duration of break in a working day (min)	76.15 (37.98)	67.33 (33.27)	81.00 [#]	0.419
Holidays per week (<i>n</i>)	0.92 (0.28)	1.00 (0.00)	90.00 [#]	0.283
Sleep (h)	6.80 (0.69)	6.87 (0.99)	87.00 [#]	0.606

Table 3: Time effects over 30 days in well-being scores (Friedman's test)

Group	<i>n</i>	Mean (SD)			χ^2	<i>P</i>
		Wellbeing baseline	Wellbeing day-15	Wellbeing day-30		
Adherent	12	46.67 (8.66)	53.17 (7.95)	51.75 (8.23)	12.465	0.002*
Nonadherent	14	44.93 (10.43)	50.50 (6.67)	49.43 (9.56)	4.792	0.091

* <0.017 significance post Bonferroni correction. SD: Standard deviation

cognition. This study is one of the few intervention studies conducted on the well-being of mental health-care students. The focus was on 1st-year students who are considered the most vulnerable group compared to the 2nd years or later year students who have adjusted and developed their own strategies to cope with the personal and professional demands of the training period.^[13]

In spite of multiple strategies, only 28 students enrolled to volunteer for the research and brief yoga module. This lower enrolment could be due to the multiple factors such as, their awareness and personal attitude toward yoga and its benefits, inability to involve in the research program due to academic and clinical commitments, having no felt need at present for such an intervention, already pursuing other self-care strategies or not preferring yoga, etc., Adherence to yoga has always been discussed as a barrier to test the effectiveness of yoga.^[17,19] This validates the need for a brief yoga module such as the one developed in this study, which showed improved well-being scores in those who practiced yoga for a period of 15 days. This also reflects the finding in several recent studies that like medication or other interventions, yoga needs to be practiced regularly (at least 3 times a week) to obtain significant benefits.^[20]

The feasibility of the brief yoga module was measured based on eight parameters described by Bowen *et al.*,^[21]

Table 4: Themes and subthemes generated from qualitative feedback of students

Question	Themes/subthemes generated	Quotes
Reasons for participation	Perceived benefits of yoga module	“Coping with stress is my reason to enroll in this workshop” (Mr. S, 27; MD psychiatry)
	Mental health benefit	
	Physical health benefits	
	Others	
	Learning yoga	“I always wanted to learn yoga in a standard manner to adopt in my life” (Mr. H, 24; MPhil PSW)
Expectations from module	Learning yoga	
	Research	
	Expected outcomes	“Handle stress n to have proper sleep” (Ms B, 24, MSc psychiatric nursing)
	Improvement in mental health	“Improve overall strength and flexibility” (Ms P, 24, MPhil CP)
	Improvement in physical health	“Better control of oneself, relaxation and mental peace” (Mr S, 27, MD psychiatry)
Pace and length of module	Improvement in cognitive functions	
	Other personal benefits	
	Experiential benefits	“To feel mindful” (Ms A, 23, MPhil CP) “To feel peace of mind” (Ms R, 23, MPhil PSW)
	Learning yoga	“To understand theoretical background how certain practices can improve health would be beneficial” (Mr. H, 24, MPhil PSW)
	No expectations	“No expectations, just exploring” (Mr A, 23, MPhil CP)
Pace and length of module	Good	“This is a perfect session. Length and pace is absolutely fine” (Ms. M, 24; MPhil PSW) “The pace was good. Length could be worked upon for consistency though” (Mr. H, 24; MPhil PSW)
	Adequate	“The duration is quite adequate. The number of days could have been extended. But considering that it can be practiced once acquainted with it, its quite feasible” (Mr. S, 27; MD Psychiatry) “The length of the sessions 30–40 min were adequate. The pace in which the exercises followed was relaxed and gave ample of breathers” (Ms. R, 24; MPhil PSW)
	Experience	“I observed the good changes in me as the day passes as I already having hardship due hectic schedule yoga really helped me to cope up with the stress of clinical duty” (Mr. M, 25; MPhil PSW) “I feel very relaxed and peacefully during the Yoga work shop. It made my day really happy and scheduled” (Ms. K, 25; MPhil PSW) I felt energetic throughout the day and reduced fatigue. It helped me to be active” (Ms. S, 23; MPhil PSW)
	Suggestions	“The module is good, I just hope more participants would have been active and period was of 4 weeks with regular follow ups after termination” (Mr. R, 26; MPhil PSW)
	Helpful factors about the brief yoga module facilitator’s style	Facilitator specific factors
Helpful factors about the brief yoga module facilitator’s style	Delivery of instruction	“Facilitator was efficient, instructions were clear, voice was audible and the session was well structured” (Mr. J, 25; MPhil CP)
	Demonstration	“I really liked that she was interactive and her instructions were very clear” (Ms. S, 25; MPhil PSW)
	Clarification	“She was available for clarifications. Frequently asked for feedback and her pace of instructions was comfortable” (Ms. P, 24; MPhil CP)
	Qualities of facilitator	“Choice of practices” (Ms R, 24, MPhil PSW)
	Module specific factors	“Structured” (Ms S, 32, MPhil CP)
Unhelpful factors about the brief yoga module facilitator’s style	Nonspecific positive responses	“Helpful during the session” (Ms. S, 24; MPhil CP) “Organised sessions” (Ms. K, 25)
	Nothing unhelpful	“I did not really find anything about the facilitator’s style unhelpful” (Ms. P, 24; MPhil CP)
	Required more explanation regarding yoga	“Could have explained about how yoga works on different systems of body” (Ms. S, 32; MPhil CP)

Contd...

Table 4: Contd...

Question	Themes/subthemes generated	Quotes
Impact of brief yoga module for wellbeing	Perceived improvements	“It has helped me in my breathing, a difficulty that I was facing” (Mr. H, 24; MPhil PSW)
	Mental health	“It was really a new experience so it gave me an fresh start to the day” (Mr. A, 23; MPhil CP)
	Physical health	“It helped me in terms of feeling better and have a positive outlook towards situation and gave me energy to carry the rest of my work for the evening before going back to hostel” (Mr. R, 26; MPhil PSW)
	Cognitive	“It did remind me that personal wellbeing needs to be the priority and I try my best to take some time out for physical activity” (Ms. P, 24; MPhil CP)
	State of feeling	
	State of mind	
Most valued regarding the brief yoga module	Other impact	
	Module	“Silence and positivity in the yoga center” (Ms. K, 25; MPhil PSW)
	Facilitator and settings	“That we have a workshop. Somebody helping us for better mental health” (Ms. M, 24; MPhil PSW)
	Module design	“Efforts taken in preparing brief yoga module exclusively for postgraduates” (Ms. H, 33; MPhil PSW)
Experience during and after sessions		“The sense of well-being and peace itself, it helped to relax mind and body and impacted positively” (Mr. R, 26; MPhil PSW)
		“Sense of feeling light postsession. At times, it was difficult to engage in sessions due to being preoccupied mentally with academic/clinical work. However, eventually I felt i was able to get past those thoughts and engage in sessions and being mentally into it” (Ms. P, 24; MPhil CP)
Factors that helped in attending module regularly	Personal factors	“The outcomes of every day session like the refreshment helped to continue” (Ms. C, 23; MPhil PSW)
	Expected outcomes	
	Experienced outcomes	
	Work and lifestyle	
	Program related factors	“Active coordination, need to relieve stress” (Mr. S, 27; MD psychiatry)
	Module design	“Because it reduced my fatigue, presence of peers” (Ms. S, 23; MPhil PSW)
Barriers in attending the module sessions regularly	Group activity	
	Not regular	
	Individual factors	“The increase in work load made it difficult to make time for self and to attend sessions regularly” (Ms. R, 24; MPhil PSW)
	Time management	“Due to wheezing and dysmenorrhea” (Ms. S, 25; MPhil PSW)
	Physical factors	“Low motivation, depressed state of mind” (Ms. A, 25; MPhil PSW)
	Mental factors	“I faced difficulty with evenings since there would be clinical work to address, and long assessments to be completed” (Ms. P, 24; MPhil CP)
	External factors	“Clinical work had to be given priority” (Ms. S, 32; MPhil CP)
	Session timing	“...emergency work-related issues where our presence was needed, acted as a barrier to attend workshop” (Mr. R,26; MPhil PSW)
Improvements to the module	Work	
	Others	
	No barriers	
	Adequate module	“The overall programme was good, and to be able to continue through audio-guided sessions by ourself was best part. The module was apt for beginners as well focussing on full body involvement” (Ms. P, 24; MPhil CP)
		“For a module that focus on improving the mental health, this was good enough and simple to follow. Duration was also adequate” (Ms. M, 24; MPhil PSW)
	Program format	“Timing of program as it was difficult to attend in the morning” (Ms. A, 25; MSc Nursing)
Timing		
Duration of sessions	“Increase in number of sessions” (Mr. H, 33; MPhil PSW)	

Contd...

Table 4: Contd...

Question	Themes/subthemes generated	Quotes		
Barriers in self-practicing the brief yoga module	Number of sessions	I had difficulty with timing for the workshop, since during evenings some or the other clinical work is to be addressed. Apart from that I sometimes felt tired and mentally drained to engage well in sessions when I came for sessions right after the clinical work” (Ms. P, 24; MPhil CP)		
	Content of module			
	Organizing			
	External factors	Space constraints	“I was finding it a little difficult to find a space where I can practice in solitude since I stay in double sharing room. Other times I was finding it difficult to gather motivation for engaging in the yoga session alone” (Ms. P, 24; MPhil CP)	
		Absence of group		
		Absence of facilitator	“Lack of motivation, absence of feeling of doing in group, work stress” (Mr. R, 26; MPhil PSW)	
		Personal factors	Motivation	“Self-motivation is less and I would prefer to practice with a person guiding in real rather than following audio instructions” (Ms. C, 23; MPhil PSW)
			Time constraints	“Lack of time and space” (Mr. H, 24; MPhil PSW)
			Workload	“Hectic work schedule” (Ms. S, 32; MPhil CP)
			Physical constraints	“Low motivation and physical problems” (Ms. A, 25; MPhil PSW)
Factors that affect wellbeing as a postgraduate mental healthcare student	Internal factors	“Hectic schedule, no time for personal life” (Ms. K, 25; MPhil PSW)		
	Work-life balance	“Academic pressure, balancing work, and personal life (Mr. J, 25; MPhil CP)		
	Stress	“Interaction with patients and their problems affecting us beyond empathy, maintaining separate time for ourselves, irregular patterns of habits” (Mr. H, 24; MPhil PSW)		
	Other personal factors			
	Work/academic factors	“The workload, academic work, stress, lack of healthy alternatives for food on the campus, and poor accessibility to healthy snacks. I am speaking about food because often we skip meals. It makes me angry and exhausted not having food on time” (Ms. R, 24; MPhil PSW)		
Systemic factors	“The exposure to such an working environment with no fixed timings and hectic schedule makes it hard for a beginner to adapt to and can result in people quitting the course in initial days. Better emotional and informational support to the student with active learning through immediate supervisors and consultants can help in reduction of stress and motivate to do better which they actually find difficult after settling down” (Mr. R, 26; MPhil PSW)			
Helpful to promote wellbeing of postgraduate mental healthcare students	Activities required	“Games sessions or groups for walking, jogging, etc.” (Ms. M, 24; MPhil PSW)		
	Games and sports			
	Physical activities	“Organizing clubs like nature/eco/green club etc.” (Mr. H, 24; MPhil PSW)		
	Recreational activities	“Seeking help without hesitation if we have issues” (Mr. J, 24; MPhil CP)		
	Individual factors			
	External systemic factors		“Maintaining self- care, be it physical and mental” (Ms. S, 24; MPhil CP)	
		“Emphasis by supervisors on student well-being, assigning a mentor to assist with various challenges” (Ms. P, 24; MPhil CP)		
		“Food, community feeling among peers, sport, and other cultural events. Peercounseling. Having a system where people can report that they are not having a good mental health (without being judged, and getting the benefit of doubt/little accommodation)” (Ms. R, 24; MPhil PSW)		
		“Decrease workload and give importance to leisure activities other than only academics” (Mr. S, 27; MD psychiatry)		

Contd...

Table 4: Contd...

Question	Themes/subthemes generated	Quotes
Other feedbacks/ comments	Positive responses	“Compulsory regular 20 min yoga module before starting the day” (Ms. A, 26)
	Good	“Overall good program that I would like to suggest for other students because many go through stressful situations like myself” (Mr. K, 29; MPhil PSW)
	Gratitude	“Thanks for the opportunity, I really enjoyed being a part of the module” (Mr. R, 26; MPhil PSW)
	Positive changes	“The idea of yoga intervention is good, and to bring a difference needs to be followed through and encouraged and supported so that the hurdles in the way of self-care could be eased out” (Ms. P, 24; MPhil CP)
		“Overall, very helpful in relieving stress and increasing work efficacy” (Mr. S, 27; MD psychiatry)

i.e., acceptability, demand, implementation, practicality, integration, expansion and limited-efficacy testing. The feasibility of this module ranged from medium to high, whereas adaptability is yet to be tested.

All the participants reported that they would recommend the module for the next batch of students. Positive in-session feedback given by the student volunteers on how they perceived the module, its practice and its effect in their daily life, suggests the acceptability of this module. When the workshop was announced for all students, i.e., even nonresearch students, the increase in the turnout of the participants observed across the workshop sessions indicates a general demand for such an intervention program. The different academic/clinical timings of the postgraduate students stood as a major barrier in their daily participation in the module. The unstructured nature of their work schedule and workload were reported as other barriers apart from few personal barriers such as mood, motivation and health problems. The number of female students was more in the nonadherent group compared to male students. Physical factors such as discomfort due to dysmenorrhea and fatigue were reported by the female students as a barrier in regularly attending the brief yoga module. To enhance the adherence to the yoga module, the module could be adapted in various ways to suit the needs and to overcome some of the reported barriers. Further, the timings of the program could be made flexible with an option of attending the sessions either in the morning or evening. The brief yoga-based workshop program can be easily integrated into the current tertiary mental health-care settings given the moderate demand and high acceptability of the program by both the students and the team at yoga center.

Irrespective of the course of study, the students exhibited similar well-being scores from baseline to follow-up. No other studies have been conducted comparing the well-being of postgraduate students across various mental health-care disciplines. The fact that the well-being of the students who attended more than 50% of the module

improved over a period of just 15 days shows that the module was effective in producing effects within this short period of time. The qualitative data of this study and other publish research study^[13] also support this finding where the participants perceived improvement in their overall well-being and was expressed as: Feeling energetic, fresh, relaxed, peace of mind, improved concentration, and improved affect. Improvements in happiness, positivity, personal satisfaction, and self-confidence were also seen. It can be easily concluded from the responses that the majority of students were looking forward to improvement in mental health or a self-care routine. A few barriers to self-practicing the module identified in the study are workload, time constraints and lack of motivation which were also identified by Dayananda *et al.*^[22] in their study such as irregularity in lifestyle, occupational commitments as strong barriers; dullness, laziness, physical and mental overexertion, wandering of mind, unsteadiness of mind, procrastination, etc., as the barriers of moderate nature and systemic factors considered to impact the professionals were lack of flexibility and a poor work-life balance.

The MNA task results suggest significant deactivation in channel 5 corresponding to the left primary somatosensory region of the brain for the adherent group as compared to the nonadherent group during Static phase of MNA task. A plausible explanation for the deactivation in channel 5 during Static phase of MNA task without compromising the performance in the task could be improvement in the efficiency of that part of the neural network after the practice of yoga. The group effect between adherent and nonadherents denotes significant activation in the channel corresponding to the right somatosensory region (Channel 10) of the brain in adherents during the active phase of MNA task in comparison to the dynamic phase of MNA task. This indicates enhanced availability of HbO (oxyhaemoglobin) in that area of the brain during the MNA task. While, nonadherents exhibited deactivation in channel 10 during active phase of MNA task in comparison to dynamic phase of MNA task. The zero moves reaction

time in STOL task also significantly improved between pre and postyoga intervention in adherents. The absence of other positive results is understood to be due to the low dose of intervention and less mean sessions attended by the participants which is deemed insufficient to show an effect on the fNIRS parameters.^[16]

Students' mental health and well-being has been the focus of the Ministry of Human Resource and Development, Government of India, with its "Manodarpan" initiative. Yoga as a part of curriculum for improving mental well-being of students, especially in health care, can be considered as part this initiative along with counseling services, proactive promotive and preventive initiatives and formal support system at workplace, and mental health services to ensure psychosocial safety nets for students. In the current study also, need for self-care and time for self, personal time were some of the recurring themes from the analysis, which reiterate the need to provide this module to students.

The study is the first yoga intervention study in India for postgraduate mental health-care students and had a mixed sample set of mental health-care students from multiple disciplines – M.Phil Psychiatric Social Work, M.Phil Clinical Psychology, MD Psychiatry and M.Sc. Psychiatric Nursing. The quasi-experimental mixed model of the study is one of its strengths as both qualitative and quantitative approaches in data collection and analysis is employed. The study focused mainly only on one primary outcome measure (wellbeing) and a secondary outcome (fNIRS). The repeated well-being assessment (pre, post, and follow-up) at three different points gives better credibility in terms of understanding the results. The study adds to the scarce existing qualitative literature on yoga intervention for mental healthcare students by qualitatively documenting the experiences of participants. The high acceptance of the module indicates the feasibility of upgrading the pilot intervention program and integrating into promotive mental student welfare services. The limitations of this study include: Lack of a control group/waitlisted group due to the time constraints in completing the research, low number of students enrolled in the study, and the high dropout rate.

Conclusion

A brief yoga module was found to improve the overall well-being and mental health of postgraduate students in a tertiary mental health-care institute. The module was found to be feasible on domains as such acceptability, demand, implementation, practicality, integration, expansion, and limited-efficacy testing. Future research needs to focus on integrating such modules as part of the student well-being initiatives in all mental health-care settings.

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Ethical clearance

Central Trials Registry-India (CTRI-REF/2019/12/030163). Institutional Ethics Committee number: No NIMH/DO/BEH. Sc.Div./2019-20.

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Conflicts of interest

There are no conflicts of interest.

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