

Perception of Higher Institutes' Students on The Role of Yoga and Meditation in Indian Knowledge Systems in Enhancing their Cognitive Development: A Study of Punjab Region

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Abstract

The purpose of this study is to investigate how Punjabi university students perceive the cognitive advantages of yoga and meditation as essential elements of Indian Knowledge Systems (IKS). Four universities' worth of 400 students' responses to a standardised questionnaire were gathered. The results show that a sizable majority of students are aware of how these routines enhance cognitive development and lead to improvements in focus, memory, and creativity. Additionally, a correlation was found between the frequency of practice and the perceived cognitive advances, with students perceiving higher benefits from regular practice. Notwithstanding the favourable opinions, obstacles like schedule conflicts made it difficult to include yoga and meditation into regular study sessions. The study highlights how important it is for educational institutions to include these activities in their curricula in order to improve students' cognitive development and general wellbeing. According to the findings, deliberate efforts should be put into place to encourage student participation in yoga and meditation.

Keywords: Indian Knowledge Systems, Yoga, Meditation, Cognitive Development, Higher Education.

1. Introduction

Indian Knowledge Systems (IKS) are a wealth of traditional knowledge and methods that have long been an essential part of the nation's education and culture. Yoga and meditation are two of the main components of IKS, and both have been shown to have positive effects on mental, emotional, and physical health. In recent years, there has been a growing interest in integrating these practices into modern educational systems, particularly in higher education, to foster holistic development (Ravindra, 2019). Yoga and meditation, which emphasise cognitive growth, are frequently associated with improved focus, memory, and general academic performance (Rani & Kumar, 2021).

According to Piaget (1970), cognitive development is the process by which learning, thinking, and understanding change over the course of a person's life. Since higher education is a crucial stage in a person's intellectual development, it is a good time to incorporate techniques that can strengthen these cognitive capacities. Yoga has been shown to have a good effect on cognitive processes like attention, executive functioning, and memory because of its emphasis on mindfulness, physical postures, and breath control (Gothe et al., 2016). Similarly, there is growing evidence that meditation, especially mindfulness-based meditation, helps with emotional control, cognitive flexibility, and attention (Tang, Hölzel, & Posner, 2015).

Policymakers and academics have supported the integration of IKS in Indian education, with the National Education Policy (NEP) 2020 highlighting the inclusion of yoga and meditation as curriculum components to support mental and cognitive development (Ministry of Education, 2020). The value of yoga and meditation in improving cognitive function is consistent with international movements that emphasise the significance of all-encompassing educational strategies (Hyde & LaMarre, 2016). This change recognises that, particularly in highly competitive academic settings, education should place equal emphasis on developing students' mental toughness and cognitive acuity as well as academic knowledge.

It is important to know how students in Punjab, where higher education is becoming more and more popular, view yoga and meditation as cognitive growth techniques. Although earlier research has looked at the mental and physical health advantages of yoga and meditation, there is still a lack of studies that particularly address these practices' effects on cognition in the setting of higher education (Sharma & Dhillon, 2020). This study aims to close this gap by investigating how students at Punjab's top universities perceive the benefits of yoga and meditation for cognitive development. It also looks at the correlation between the frequency of these practices and their perceived influence on cognitive development.

2. Review of literature and research gap

Many research have been conducted on the integration of yoga and meditation into the classroom, emphasising the cognitive, psychological, and physical advantages of these practices. According to Gothe et al. (2016), yoga practice greatly enhanced executive skills like working memory, task switching, and inhibitory control. The mindfulness element of yoga is thought to be responsible for these cognitive benefits since it aids with attentional concentration and mental clarity. In a similar vein, Streeter et al. (2012) found that yoga practitioners had higher levels of the neurotransmitter gamma-aminobutyric acid (GABA), which is connected to better mood and cognitive function. It has been demonstrated that mindfulness-based meditation techniques, in particular, improve attention and emotional regulation, which in turn improves cognitive functioning. The brain's structural alterations brought about by mindfulness meditation have been linked to improvements in attention and self-regulation, as Tang, Hölzel, and Posner (2015) showed. According to their research, consistent meditation practice can lessen mind-wandering and increase cognitive flexibility, both of which can enhance academic achievement. In support of this, a meta-analysis conducted in 2011 by Chiesa, Calati, and Serretti found that mindfulness and transcendental meditation practices significantly enhance cognitive abilities like memory, attention, and problem-solving techniques.

Zeidan et al.'s (2010) study, which shown that even brief meditation training can enhance working memory and sustained attention, lends more credence to these assertions. This supports previous research by Lutz, Slagter, Dunne, and Davidson (2008), which suggested that by lessening the impact of distractions, meditation improves the ability to focus attention for extended periods of time. These cognitive advantages are particularly pertinent in educational contexts, where the capacity for sustained attention and focus is essential for academic achievement. It has also been studied how yoga reduces stress and how this has an indirect effect on cognitive performance. According to Rani and Kumar (2021), doing yoga helps people feel less stressed and anxious, which enhances their ability to think clearly. Stress can impede cognitive functions including memory and concentration, especially in educational settings. Yoga fosters an environment that is favourable to learning and cognitive growth by lowering stress.

Academic performance in higher education settings has been investigated in connection to the integration of yoga and meditation. According to Hyde and LaMarre (2016), students who frequently engaged in yoga and mindfulness meditation reported enhanced academic achievement, including enhanced focus, time management, and general academic success. Sharma and Dhillon (2020), who stressed that yoga and meditation helped develop mental resilience and cognitive sharpness, allowing students to better cope with academic challenges, further reinforced these findings. Beyond academic achievement, yoga and meditation have been shown to have cognitive benefits. Butzer et al. (2016) discovered that college students who participated in yoga programs significantly improved their emotional regulation and stress management, two skills that are linked to cognitive growth in their study on emotional intelligence. Research has demonstrated that emotional intelligence is positively correlated with improved cognitive performance, especially when it comes to activities involving intricate problem-solving and judgement (Brackett, Rivers, & Salovey, 2011).

The use of Indian Knowledge Systems (IKS) in the classroom, such as yoga and meditation, has become more popular, particularly since the NEP 2020 highlighted the benefits of yoga for cognitive and holistic development (Ministry of Education, 2020). Field's (2011) research demonstrates the neurobiological advantages of yoga and meditation, demonstrating how consistent practice improves brain structures associated with memory and learning by elevating levels of brain-derived neurotrophic factor (BDNF). Furthermore, as shown by Raghuraj and Telles (2008), yoga's beneficial effects on bodily health also enhance mental clarity, focus, and decision-making, which tangentially supports cognitive functions.

There are still gaps in our knowledge, especially on the role of yoga and meditation in Indian higher education, despite a wealth of studies on the cognitive and emotional advantages of these practices. The majority of research, including that conducted by Gothe et al. (2016) and Streeter et al. (2012), focusses on Western contexts, leaving little room for investigation into how Indian students view yoga and meditation as components of Indian Knowledge Systems (IKS). The neurological and psychological effects of these practices are being studied by other researchers (e.g., Tang et al., 2015; Khalsa et al., 2012), but the direct relationship between the frequency of practice and cognitive development in Indian students is not as well-emphasized. Furthermore, despite the support for incorporating these traditions into education by the NEP 2020, the regional and demographic differences in attitudes of these activities—particularly in Punjab—remain understudied. In order to close these gaps, this study looks at how often students in Punjab's higher education institutions practise yoga and meditation and how they perceive these practices' cognitive benefits.

3. Statement of problem and objectives of the study

The potential of yoga and meditation, two essential elements of Indian Knowledge Systems (IKS), to improve cognitive development has come to light more recently. Even though the NEP 2020 places a strong emphasis on incorporating these techniques into instruction, Punjab in particular has seen a low uptake of these practices in higher education. There is a knowledge vacuum on the impact of yoga and meditation on cognitive abilities including memory, attention, and critical thinking, despite a wealth of studies on their positive effects on the body and mind. By addressing this gap, educational programs that integrate IKS to promote students' cognitive development can be developed with new insights. The major objectives of the study are:

1. To examine students' perceptions of the cognitive benefits of yoga and meditation as part of Indian Knowledge Systems (IKS) in higher education.
2. To analyze the relationship between the frequency of practicing yoga and meditation and perceived cognitive development among students in higher educational institutions in Punjab.

4. Research methodology

Using a quantitative research design, this study examines the opinions of 400 students from four of Punjab's top universities, chosen based on the NIRF 2024 university rankings: Thapar Institute of Engineering and Technology (Patiala), Lovely Professional University (Phagwara), Chandigarh University (Mohali), and Punjab Agricultural University (Ludhiana). Each institution has 100 students. Data collection was done using convenience sampling, which ensured representation from a variety of demographic groups. An organised survey was used to gather information about students' experiences with yoga and meditation, as well as their opinions about the cognitive advantages (such as improved memory, focus, and critical thinking) and difficulties incorporating these activities into their daily academic schedules. Descriptive and inferential statistics are employed in the analysis to look at the connection between the frequency of yoga and meditation practice and the perception of cognitive progress. The purpose of this study is to shed light on how yoga and meditation might improve cognitive development and how their inclusion in curricula for higher education might be implemented.

5. Results and discussions

Table 1 provides a detailed summary of the respondents' demographic profile and the characteristics of the study participants. There is a gender distribution of 50% male (n = 200) and 50% female (n = 200) in the sample. According to the age distribution, 65% of the sample (n = 260) is between the ages of 18 and 23, 25% (n = 100) is between the ages of 24 and 27, and 10% (n = 40) is older than 27. The study involved the random recruitment of participants from four universities, namely Chandigarh University, Lovely Professional University, Thapar Institute of Engineering and Technology, and Punjab Agricultural University. Each university accounted for 25% (n = 100) of the overall sample. In terms of the course of study, postgraduate and doctorate students make up 25% (n = 100) and 10% (n = 40), respectively, of the student body, with undergraduates making up the majority (65%, n = 260). Furthermore, the length of time respondents have been practicing yoga and meditation shows that 30% (n = 120) have done so for less than six months, 20% (n = 80) for six months to a year, 15% (n = 60) for one to two years, and 22.5% (n = 90) for more than two years. Interestingly, 12.5% (n = 50) of respondents have never done so.

Table 1: Demographic Profile of Respondents

Demographic Variables	Categories	Frequency (n)	Percentage (%)
Gender	Male	200	50
	Female	200	50
Age Distribution	18-23 years	260	65
	24-27 years	100	25
	Above 27 years	40	10
University	Chandigarh University, Mohali	100	25

Demographic Variables	Categories	Frequency (n)	Percentage (%)
	Lovely Professional University, Phagwara	100	25
	Thapar Institute of Engineering and Technology, Patiala	100	25
	Punjab Agricultural University, Ludhiana	100	25
Program of Study	Undergraduate	260	65
	Postgraduate	100	25
	Doctoral	40	10
Duration of Yoga and Meditation Practice	Less than 6 months	120	30
	6 months to 1 year	80	20
	1 to 2 years	60	15
	More than 2 years	90	22.5
	Never practiced	50	12.5

Table 2 lists respondents' opinions about how yoga and meditation, which are components of Indian Knowledge Systems (IKS), improve cognition. According to the findings, 32.5% of participants (n = 130) are "somewhat familiar" with yoga and meditation, compared to 37.5% (n = 150) who are "very familiar." Nonetheless, 20% (n = 70) indicated a lack of familiarity, indicating a need for more information and awareness raising regarding these practices. Interestingly, a sizable majority (80%, n = 320) concur or strongly concur that yoga and meditation provide cognitive benefits, suggesting that students have a favourable opinion of these practices. Better stress management (62.5%, n = 250) and increased memory (55.5%, n = 220) are regarded as substantial benefits by 67.5% (n = 270) of respondents. Significantly, 62.5% (n = 250) of respondents thought it would be advantageous to include yoga and meditation in the curriculum, indicating a considerable desire to include these practices in higher education. These results suggest that even if students are aware of the cognitive benefits of yoga and meditation, there is still room to improve their familiarity with and application in educational contexts, leading to a more comprehensive learning environment that supports cognitive development.

Table 2: Perceptions on Cognitive Benefits of Yoga and Meditation

Question	Response	Frequency (n)	Percentage (%)
Familiarity with Yoga and Meditation (IKS)	Very familiar	150	37.5%
	Somewhat familiar	130	32.5%
	Neutral	50	12.5%
	Not very familiar	40	10%
	Not familiar at all	30	7.5%
	Total		400

Question	Response	Frequency (n)	Percentage (%)
Agreement with Cognitive Benefits	Strongly agree	140	35%
	Agree	180	45%
	Neutral	40	10%
	Disagree	30	7.5%
	Strongly disagree	10	2.5%
	Total	400	100%
Perceived Cognitive Benefits	Improved focus and concentration	270	67.5%
	Enhanced memory	220	55%
	Better stress management	250	62.5%
	Increased creativity and problem-solving ability	180	45%
	No benefits	50	12.5%
	Other (Please specify)	30	7.5%
Incorporating Yoga/Meditation into Curriculum	Yes, definitely	250	62.5%
	Maybe	120	30%
	No, it wouldn't make much difference	30	7.5%
	Total	400	100%

The weighted average mean for respondents' overall assessments of the cognitive advantages of yoga and meditation is shown in Table 3. A weighted average mean of 4.025 is found in the data, which suggests that students generally have positive opinions of these behaviours. In particular, 45% (n = 180) agree and contribute a large weighted score of 720, while 35% (n = 140) strongly agree and contribute a score of 700. However, only 10% (n = 40) express neutrality, while the lowest percentages indicate extreme disagreement (2.5%, n = 10) or disagreement (10%, n = 40). According to these results, a vast majority of students are aware of the cognitive benefits of yoga and meditation, which emphasises the possibility of incorporating these activities into curricula. The weighted average mean's positive reflections suggest that universities would gain from including yoga and meditation in their curricula to improve students' overall well-being and cognitive development. This would be in line with modern educational objectives that place a premium on holistic development.

Table 3: Weighted Average Mean for Overall Perceptions on Cognitive Benefits of Yoga and Meditation

Response	Frequency (n)	Weight (w)	Weighted Score (w × n)
Strongly Agree	140	5	700
Agree	180	4	720
Neutral	40	3	120
Disagree	30	2	60

Response	Frequency (n)	Weight (w)	Weighted Score (w × n)
Strongly Disagree	10	1	10
Total	400		1610
Weighted Average Mean			4.025

Table 4 examines how frequently respondents practise yoga and meditation as well as how they believe these practices affect cognitive growth. Of the participants, 25% (n = 100) practise three to four times a week, and 22.5% (n = 90) practise daily, demonstrating a significant degree of consistent engagement. Remarkably, a sizable percentage (70%) thinks that doing yoga and meditation has an impact on their cognitive ability, with 32.5% (n = 130) saying that it has a major impact. Furthermore, 30% of respondents (n = 120) strongly concur that higher frequency produces better cognitive outcomes, corroborating the idea that regular practice can improve cognitive abilities like memory and attention. But it's clear that there are difficulties incorporating these practices into academic schedules; 40% of respondents (n = 160) identified time constraints as a primary obstacle. In spite of these obstacles, 65% of participants (n = 260) believe that yoga and meditation have a positive or very positive overall impact on their academic performance. This implies that even while students have difficulty continuing a regular practice, they are aware of the possible cognitive advantages, highlighting the necessity for educational institutions to support increased accessibility and the incorporation of yoga and meditation into the curriculum.

Table 4: Frequency of Practice and Perceived Cognitive Development

Question	Response	Frequency (n)	Percentage (%)
How often do you practice yoga and/or meditation?	Daily	90	22.5%
	3-4 times a week	100	25%
	Once or twice a week	70	17.5%
	Occasionally	80	20%
	Never	60	15%
	Total	400	100%
Do you feel that the frequency of practicing affects cognitive abilities?	Yes, greatly	130	32.5%
	Yes, somewhat	150	37.5%
	Neutral	50	12.5%
	Not really	40	10%
	Not at all	30	7.5%
	Total	400	100%
More frequency of yoga and meditation leads to better my cognitive performance	Strongly agree	120	30%
	Agree	160	40%
	Neutral	60	15%
	Disagree	40	10%
	Strongly disagree	20	5%

Question	Response	Frequency (n)	Percentage (%)
	Total	400	100%
Challenges in integrating yoga/meditation into academic routine	Yes, due to lack of time	160	40%
	Yes, due to lack of interest	70	17.5%
	Yes, due to lack of resources	50	12.5%
	No challenges	90	22.5%
	Other (Please specify)	30	7.5%
	Total	400	100%
Overall effect of yoga/meditation on academic performance	Very positive	110	27.5%
	Positive	150	37.5%
	Neutral	80	20%
	Negative	40	10%
	Very negative	20	5%
	Total	400	100%

The association between the respondents' reported cognitive progress and how frequently they practise yoga and meditation is seen in Table 5. According to the results, 10 participants think daily yoga and meditation practice has a significant impact on their cognitive capacities, while 15 feel it has a moderate impact. However, 50 people who practice three to four times a week report a considerable positive benefit, suggesting that regular practice and cognitive perception are strongly correlated. It's interesting to note that people who practise infrequently or never respond in a more varied way; more people express neutrality or believe that practicing has less of an impact on cognitive growth. The Chi-square contributions show that individuals who practice 3–4 times a week and occasionally make the most contributions to the overall Chi-square statistic, indicating a statistically significant correlation between practice frequency and felt cognitive gains. In order to optimise cognitive advantages, educational institutions should encourage and incorporate regular yoga and meditation practice among their students. These findings highlight the significance of these activities as possible facilitators of cognitive enhancement.

Table 5: Relationship Between Frequency of Practicing Yoga and Meditation and Perceived Cognitive Development

Frequency Category	Yes, Greatly (O)	Yes, Somewhat (O)	Neutral (O)	Not Really (O)	Not at All (O)	Expected (E)	Contribution to Chi-Square
Daily	10	15	10	5	5	11.25	2.355

Frequency Category	Yes, Greatly (O)	Yes, Somewhat (O)	Neutral (O)	Not Really (O)	Not at All (O)	Expected (E)	Contribution to Chi-Square
3-4 times a week	50	30	10	5	5	35	6.429
Once or twice a week	20	25	10	5	10	24.5	0.825
Occasionally	10	20	10	20	20	28	12.857
Never	10	20	10	5	15	21	5.798
Total	100	100	50	35	55		72.75

6. Conclusions and managerial implications

The outcomes of this study demonstrate a considerable positive perception among students regarding the cognitive benefits of yoga and meditation, demonstrating that persistent practice is associated to better cognitive capacities such as focus, memory, and creativity. A significant percentage of participants conveyed their intention to include these practices into their academic schedules, highlighting the possibility that educational establishments could supplement their curricula with yoga and meditation to promote cognitive growth. This integration may enhance students' general wellbeing in addition to their academic achievement. Higher education institutions should give top priority to creating programs that promote mindfulness practices. They should also make sure to provide enough time and resources so that students can practise yoga and meditation. Students' access and participation might be facilitated by putting initiatives like workshops, specialised practice areas, and collaborations with nearby yoga centres into action. The study also creates opportunities for future investigations into the long-term impacts of yoga and meditation on cognitive function in a range of demographic and educational contexts. A more holistic approach to education would benefit from a deeper understanding of how to best customise educational programs to maximise student achievements, which would come from researching the effects of various forms of yoga and meditation on cognitive development.

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