



EFFECT OF YOGA PRACTICE ON STRESS, COGNITIVE FAILURE AND SUBJECTIVE HAPPINESS

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ABSTRACT **Background:** Yoga has a strong foundation in the historical and traditional aspects of ancient India. Research indicates that practicing yoga can lower stress, enhance focus and attention, generate positive feelings, and boost overall happiness. This study aimed to investigate the effect of yoga asana practice on stress, cognitive failure, and subjective happiness in university students. **Methods:** A cross-sectional study design and convenience sampling were used. The sample consists of two groups: university students who have been practicing yoga asana for at least 6 months and non-yoga practicing university students, with each group comprising 30 participants aged between 18 and 25 years. Yoga practitioners are individuals who practice various forms of yoga asana, including standing series, prone series, supine series, and sitting series asana. The samples were collected using a stress indicator questionnaire, cognitive failure, and subjective happiness scale. **Results:** Stress indicators (physical, sleep and emotional) and cognitive failure were notably lower in the yoga practitioner group than in the non-yoga practitioner group. Additionally, the subjective happiness of the yoga practitioner group was significantly higher than that of the non-yoga practitioner group. These results are supported by earlier research findings. **Conclusion:** Research suggests that practicing yoga asana can significantly lower stress levels, reduce susceptibility to distractions, enhance cognitive function, and boost subjective happiness. However, the cross-sectional study design and convenience sampling may limit the generalizability of the findings. In future longitudinal studies, randomized controlled trials may be conducted to strengthen the study's implications.

KEYWORDS : Yoga Asana, Stress Reduction, Cognitive Function, Subjective Happiness, University Students

INTRODUCTION

Yoga has a strong foundation in the ancient history and culture of India. Yoga, a tradition with a history of 3,000 years, is now recognized in the Western world as an all-encompassing approach to well-being and is categorized by the National Institutes of Health as a type of Complementary and Alternative Medicine (Tabish, 2008). Studies indicate that engaging in yoga can decrease stress levels, enhance focus and concentration, evoke positive feelings, and boost personal happiness (Woodyard, 2011). Yoga is a type of holistic exercise that can influence one's emotions, mindset, and demeanor by affecting the body's physical condition. Consistent practice improves physical strength, flexibility, and stamina while promoting compassion, understanding, and self-control. It also contributes to inner harmony and general psychological well-being (Bussing et al., 2012; Hendriks et al., 2017).

Yoga asana practice comprises a variety of physical postures and breathing exercises to harmonize the body and mind. It includes standing series (e.g., Ardha-chakrasana), prone series (such as Makarasana, Bhujangasana, Shalabhasana), supine series (like Sarvangasana, Matsyasana), and sitting series (including Vakrasanam Paschimottanasane Ushtrasan). Recent literature on the effects of various types of yoga asanas on health and well-being has provided valuable insights. Research has indicated that different yoga asanas have specific impacts on physical and mental health. For example, standing series asanas like Ardha-chakrasana can improve balance and stability, whereas prone series asanas such as Makarasana and Bhujangasana are known to enhance back strength and flexibility. Supine series asanas like Sarvangasana and Matsyasana contribute to improved respiration and relaxation, and sitting series asanas like Vakrasana and Paschimottanasana enhance spinal flexibility and promote mindfulness (Woodyard, 2011). These findings highlight the diverse benefits of incorporating various yoga asanas into regular practice, offering a comprehensive approach to physical and mental well-being.

Rocha et al. (2012) demonstrated that yoga practice improves memory performance and decreases anxiety, depression, and stress-related measures in healthy men. Similarly, a systematic review by Sharma and Haider (2012) found that individuals who engaged in regular yoga practice experienced a significant reduction in state and trait anxiety

compared with non-practitioners.

The relationship between stress and cognitive failure has been well-documented in the literature. High levels of stress have been associated with increased cognitive failures, such as forgetfulness, distraction, and lack of focus (Varghese et al., 2015; Carrigan & Barkus, 2016). In addition, a study by Regehr et al. (2013) revealed a significant correlation between self-reported stress levels and cognitive failures among university students. These findings highlight the detrimental impact of stress on cognitive functioning, emphasizing the need for effective stress management strategies.

Stress and cognitive failure have been linked to reduced subjective happiness and well-being (Morgado & Cerqueira, 2018). Research has shown that individuals who reported higher levels of cognitive failures also reported lower levels of subjective happiness. (Khairuddin & Mahmud, 2020; Zhu et al., 2022) Furthermore, a longitudinal study showed that cognitive failures predicted decreased levels of subjective well-being over time (Galinha & Pais-Ribeiro, 2011). These findings underscore the importance of addressing stress and cognitive failures to enhance subjective happiness among university students.

While existing research has emphasized the potential advantages of practicing yoga in reducing stress, cognitive impairment, and subjective well-being, there is a lack of understanding regarding the effectiveness of yoga practice specifically for Indian university students. Stress is a widespread issue among university students and can adversely affect their physical and mental health (Pascoe et al., 2019). Cognitive failure also commonly affects university students, potentially affecting their academic performance and overall well-being (Payne & Schnapp, 2014). Limited studies have directly examined the effect of yoga practice on stress, cognitive failure, and subjective happiness in this demographics. Thus, further investigation into this area is essential for guiding evidence-based interventions aimed at enhancing the psychological well-being of university students through yoga practice.

METHODOLOGY

Study Design and Participants

A cross-sectional study design and convenience sampling were used to collect data. The sample size was determined using G*Power for effect

size=0.75, power = 0.80, and $\alpha=0.05$ for the two groups (Faul et al., 2009). An estimate of 58 participants was provided, although 60 data were collected, which comprised two groups: yoga practitioners and non-yoga practitioners, with 30 participants aged 18-25 in each group. Yoga practitioners are individuals who practice various forms of yoga asana that include standing series (Ardhachakrasana), prone series (Makarasana, Bhujangasana, Shalabhasana, Bhujangasana, Parvatsana), supine series (Sarvangasana, Matsyasana, Pawanmuktasana), and sitting series (Vakrasana, Paschimottanasana, Ushtrasana). Participants in both groups were matched according to age and education qualification. The participants in the yoga group were university students who regularly practiced yoga asana for at least six months, whereas the non-yoga group consisted of university students who did not practice yoga asana or had no prior experience with yoga.

Measures

The stress level of participants was assessed using the Stress Indicators Questionnaire developed by Counseling Team International. This questionnaire assesses how stress affects individuals' physical, behavioral, emotional, and personal habit indicators (Noor, 2019). Cognitive Failure was measured using the Cognitive Failure Scale given by Broadbent et al. (1982), which scores memory, distractibility, blunders, and (memory for) Names. A high CFQ score is defined as a score of ≥ 43 , indicating greater subjective cognitive failure. The subjective Happiness Scale (SHS) is a four-item scale developed by Lyubomirsky and Lepper (1999) to measure global subjective happiness. To score the SHS, the fourth item is reverse-coded, and the mean of the four items is computed, yielding a range from 1 to 7, with higher scores indicating greater levels of happiness.

Procedure

We approached university students aged 18-25 years, who had been engaging in yoga asana practice for 6 months for the yoga practitioners' group, and university students who were not practicing any form of yoga for the non-yoga practitioners' group. After providing informed consent, the participants were given a questionnaire to collect data regarding sociodemographics, stress indicators, cognitive failure, and subjective happiness.

Statistical Analysis

Descriptive statistics, mean and standard deviation were used to summarize the participants' scores on different tests. Inferential statistics, t-test assuming equal variance was used to compare the two groups and assess the effect of yoga practice on stress, cognitive failure, and subjective happiness. Data were analyzed using Microsoft Excel 2016.

RESULT

Table 1: Participants' Characteristics

Variable/Group	Yoga Practitioners	Non-Yoga Practitioners
Sample	30 (15M, 15F)	30 (15M, 15F)
Mean Age	22.53 years	21.77 years
Mean Education	14.70 years	14.80 years
Mean duration of Yoga Practice	13.80 (months)	
Mean duration of Yoga Session	35.50 (months)	

Table 1 shows that both groups, yoga practitioners and non-yoga practitioners, consisted of 15 males and 15 females each. The average age of yoga practitioners was 22.53 and 21.77 years for non-yoga practitioners; there were no notable differences in the mean ages between the two groups. In terms of education, the mean years of education for yoga practitioners is 14.70 years and for non-yoga participants is 14.80 years; similarly, there is no significant contrast in the educational levels between both groups. The mean duration of yoga practice was 13.80 months, and the typical length of a yoga session was 35.50 min.

Table 2: Effect of Yoga Practice on Stress, Cognitive Failure and Subjective Happiness

Group and Questionnaire	Yoga Practitioners Mean (SD)	Non-Yoga Practitioners Mean (SD)	t-Test (p value)
Stress Indicator Questionnaire			
Physical	34.84 (5.46)	40.33 (12.38)	-2.23 (.03)
Sleep	7.80 (2.09)	9.93 (5.06)	-2.13 (.04)
Behavioral	27.43 (6.28)	29.63 (10.90)	-0.96 (.34)
Emotional	36.20 (6.61)	43.43 (14.00)	-2.49 (.02)

Personal Habits	17.03 (4.06)	22.27 (7.70)	-3.29 (.01)
Total SIQ	123.3 (17.43)	145.6 (37.50)	-2.95 (.01)
Cognitive Failure Questionnaire			
Distractibility	12.40 (4.88)	16.80 (5.21)	-3.38 (.01)
Blunder	9.90 (3.92)	12.00 (4.09)	-2.02 (.05)
Memory	8.20 (4.05)	10.50 (3.88)	-2.25 (.03)
Memory (for name)	1.37 (0.96)	2.17 (0.99)	-3.18 (.01)
Total CFQ	31.87 (12.26)	41.47 (13.44)	-2.89 (.01)
Subjective Happiness Questionnaire			
Total SHQ	17.77 (3.47)	14.07 (3.47)	4.13(.01)

Table 2 shows that yoga practitioners scored significantly lower on the domains of the stress indicator questionnaire than non-yoga practitioners in the physical, sleep, emotional, and personal habits domains, with scores of 34.83, 7.80, 36.20, and 17.03, respectively, compared with non-yoga practitioners' scores of 40.33, 9.93, 43.43, and 22.77, respectively. Scores in the behavioral domain showed no significant difference; however, yoga practitioners had an overall SIQ score of 123.30, which was significantly lower than the non-yoga practitioners' score of 145.60.

Yoga practitioners exhibited significantly lower scores on distractibility, blunder, memory, and memory for name (12.40, 9.90, 8.20, 1.37) domains of CFQ compared with non-yoga practitioners' respective domains (16.80, 12.00, 10.50, 2.17). The overall cognitive failure score for yoga practitioners was significantly lower at 31.87 than that for non-yoga practitioners at 41.47.

Yoga practitioners have a significantly higher average subjective happiness score of 17.77 than non-yoga practitioners, whose average score is 14.07.

The findings of the study indicate that practicing yoga asana has a positive impact on reducing stress and cognitive failure and increasing subjective happiness among university students.

DISCUSSION

Yoga Practice and Stress

The results of this study support the hypothesis that practicing yoga asana can lower stress levels among university students. These findings agree with previous research that has shown the stress-reducing effects of yoga (Gothe et al., 2016). Additionally, the study found that yoga practitioners had lower scores in the Stress Indicator Questionnaire's physical, sleep, emotional, and personal domains. This implies that yoga may have a positive impact on various aspects of stress, including personal well-being, sleep quality, emotional regulation, and physical health. Therefore, it can be concluded that yoga practice is effective in reducing stress among university students. However, there are some opposing arguments to consider regarding the impact of yoga on stress levels. Some research indicates that while yoga may provide short-term relief from stress, its long-term effects are not as significant (Büssing, 2012). Moreover, critics argue that certain individuals may not experience the same benefits and may even find yoga practice stressful or anxiety-inducing. It is important to recognize these differing perspectives before drawing definitive conclusions about the effectiveness of yoga in reducing stress among university students.

Yoga Practice and Cognitive Failure

The results of this study indicate that practicing yoga asana is associated with lower cognitive failure scores among university students. This implies that yoga may have a positive effect on cognitive functioning, specifically in reducing distractibility, reducing blunders, and improving memory and name recall. These findings support previous research that has shown the cognitive benefits of yoga, including improved attention, focus, and memory (Gothe et al., 2018). The findings also suggest that practicing yoga can lead to improved cognitive performance and a lower tendency to make errors or forget.

On the other hand, practicing yoga may have some benefits for cognitive functioning, but it is not a guaranteed solution for reducing distractibility, improving memory, and minimizing errors (Baklouti, 2022). Critics suggest that individual differences in response to yoga practice should be considered and caution should be exercised against generalizing the positive effects observed in certain studies. In addition, factors such as motivation, expectation bias, and placebo

effects could influence participants' self-reported outcomes. Therefore, while there may be some evidence of cognitive benefits from yoga practice, further longitudinal research needs to address potential confounding variables before drawing definitive conclusions about its impact on cognitive performance.

Yoga Practice and Subjective Happiness

The results show that practicing yoga asana is associated with higher subjective happiness scores among university students. This indicates that engaging in regular yoga practice can contribute to increased feelings of happiness and well-being. These findings agree with previous research that has demonstrated the positive impact of yoga on mental health and well-being (Ivtzan & Papanтониου, 2014; Elstad et al., 2020).

However, it is important to consider that subjective happiness scores may not solely be attributed to practicing yoga. Other factors such as social support, personal relationships, and individual coping mechanisms could also play a significant role in influencing well-being among university students. Therefore, while yoga practice may contribute to feelings of happiness and well-being, its exclusive impact cannot be conclusively determined without considering the influence of these other variables. Overall, this study provides evidence that practicing yoga can effectively reduce stress levels, improve cognitive functioning, and increase subjective happiness among university students.

Study Strengths

A strength of this study is that it included a large sample size of university students, providing more robust and generalizable findings within the population. Additionally, the use of validated measures for assessing stress, cognitive failure, and subjective happiness adds credibility to the findings. Another strength of this study is the use of age- and education-matched control groups, which reduced the confounding factors related to age education and allowed comparisons between yoga practitioners and non-practitioners.

Limitations of the Study

Self-report measures for stress, cognitive failure, and subjective happiness may be subject to bias. Additionally, the study is cross-sectional and only focused on short-term effects and did not assess the long-term impact of regular yoga asana practice on stress, cognitive failure, and subjective happiness. The use of convenience sampling and nonspecific yoga asana that includes all types of yoga asana limits the generalizability of the findings.

Implications of the Study

Research has shown that regular yoga asana practice can help reduce stress levels, improve cognitive function, and increase feelings of happiness and well-being in university students. By incorporating yoga asana into their daily routine, university students can improve their physical and mental well-being, better cope with stress, and enhance their overall happiness. In addition, universities could consider incorporating yoga asana programs or classes as part of their student wellness initiatives to support the mental health and well-being of their students.

CONCLUSION

The findings of this study highlight the positive effect of yoga asana practice on the well-being of university students. The results show that practicing yoga asana not only reduces stress levels but also improves cognitive functioning and increases subjective happiness. By providing evidence of these benefits, this study underscores the potential of yoga asana to support the mental and emotional well-being of university students. However, it is important to acknowledge that the study focused on short-term effects, and further research is needed to evaluate the long-term impact of regular yoga asana practice. Future investigations should explore the sustained benefits of specific yoga asana over extended periods, shedding light on its potential as a long-term strategy for promoting well-being among university students.

Informed Consent

The participants have provided consent to publish this study, and their identities have been protected.

Declaration of Conflicting Interests

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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