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# A COMPARATIVE STUDY OF SOCIAL ANXIETY AND EMOTION REGULATION AMONG YOGA PRACTITIONERS AND NON-PRACTITIONERS

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## *Abstract*

*Social anxiety is a prevalent psychological condition characterized by intense fear of social scrutiny, often leading to emotional dysregulation and impaired functioning. While mind-body practices such as yoga has shown positive. impact on various kinds of anxiety. This study examines the comparison in the levels of social anxiety and emotion regulation between yoga practitioners and non-practitioners. A total of 160 participants were divided in two groups yoga practitioners and non-yoga practitioners (n= 80 in each group) to assess the levels of social anxiety and emotion regulation strategies. Independent t-tests analyzed group differences in social anxiety, avoidance, cognitive reappraisal, and expressive suppression. Yoga practitioners showed significantly lower social anxiety ($p<0.01$) and avoidance ($p<0.01$) compared to non-practitioners. Expressive suppression was also lower among yoga practitioners ($p<0.01$), while cognitive reappraisal scores were unexpectedly higher in non-practitioners ($p<0.01$). Thus, this study supports yoga's potential benefits for social anxiety management, particularly in reducing suppression and avoidance behaviors.*

***Keywords:*** *yoga, social anxiety disorder, emotion regulation, cognitive reappraisal, expressive suppression, mind-body intervention*

## INTRODUCTION

Social anxiety disorder (SAD) represents a significant and widespread mental health challenge, marked by an overwhelming fear of social scrutiny and negative evaluation that severely impacts daily functioning (American Psychiatric Association [APA], 2013). As one of the most prevalent anxiety disorders, affecting approximately 7 percent of the population globally (Kessler et al., 2005), its onset typically occurs in adolescence and often persists into adulthood without intervention (Stein & Stein, 2008). Individuals grappling with social anxiety experience profound distress in routine social interactions, from professional engagements to casual conversations, frequently resorting to avoidance behaviors that paradoxically reinforce their anxiety over time (Clark & Wells, 1995). This chronic condition not only impairs interpersonal relationships but also diminishes overall quality of life, frequently co-occurring with emotional dysregulation and depressive symptoms (Hofmann et al., 2012).

Emotion regulation (ER), defined as the processes by which individuals influence their emotional experiences and expressions (Gross, 1998), plays a crucial role in mitigating social anxiety. According to Gross (1998) process model of emotion regulation, cognitive reappraisal (reframing emotional stimuli) and expressive suppression (inhibiting emotional expression) are two key strategies. While cognitive reappraisal is linked to psychological resilience, suppression is associated with increased distress and impaired social functioning (John & Gross, 2004).

The growing body of research exploring mind-body interventions has positioned yoga as a particularly promising approach for addressing both social anxiety and emotion regulation deficits (Cramer et al., 2018). As an ancient practice integrating physical postures, controlled breathing, and meditative techniques (Streeter

et al., 2012), yoga offers a unique multi-modal intervention that simultaneously targets physiological, cognitive, and emotional aspects of anxiety (Pascoe et al., 2017).

Contemporary studies have demonstrated yoga's capacity to modulate stress physiology by downregulating hypothalamic-pituitary-adrenal axis activity (Khalsa et al., 2012), enhancing parasympathetic nervous system function (Brown & Gerbarg, 2005), and reducing cortisol levels (Tyagi & Cohen, 2016). Furthermore, the practice cultivates interoceptive awareness - the ability to perceive and interpret internal bodily states - which appears crucial for effective emotion regulation (Farb et al., 2015). Regular yoga practice has been associated with decreased emotional reactivity and improved capacity to tolerate distress (Sahdra et al., 2011), factors particularly relevant for individuals with social anxiety who often experience intense physiological arousal in social situations (Price & Hooven, 2018). These benefits make yoga a valuable tool for those struggling with social anxiety and other emotional challenges. The aim of the present study is to compare the scores of (i) social anxiety, and (ii) dimension of emotion regulation between yoga practitioners and non-yoga practitioners. This study was hypothesized that the yoga practitioners will have lower levels of social anxiety and higher levels of emotional regulation.

## METHODOLOGY

### Participants

In this study, a total of 160 students were recruited in two groups i.e. yoga practitioners and (ii) non-yoga practitioners (n=80; each group) using purposive sampling. The yoga partitioners who had at least the experience of 3 months was included as yoga practitioners. In other group non yoga practitioners had no experience of yoga. Participants who were suffering with any stressful situation or mental health related condition or with incomplete questionnaire were excluded from the studies. No compensation and reward provided to the participants. They voluntarily participate in the research and ethical approval were obtained before filling the form, and all participants provided informed consent before participation.

### Research design

This study employed one-time comparative research design to compare the impact of yoga among the 160 participants on social anxiety and emotion regulation.

### Psychological assessments

#### *Social anxiety*

The Liebowitz Social Anxiety Scale (LSAS) was developed by Dr. Michael Liebowitz in 1987 as a standardized instrument for assessing social anxiety disorder (SAD) and quantifying the severity of social fears and avoidance behaviors (Liebowitz, 1987). The LSAS consists of 24 items, divided into performance situations (13 items) and social interaction situations (11 items), each rated for both fear intensity and avoidance behavior (Heimberg et al., 1999). Research indicates that the LSAS has a Cronbach's alpha ranging from 0.90 to 0.95, suggesting strong internal reliability (Fresco et al., 2001; Heimberg et al., 1999). The scoring of the scale is ranging from 0 to 3.

#### *Emotion regulation*

The Emotion Regulation Questionnaire (ERQ), developed by Gross and John (2003), assesses individual differences in emotion regulation strategies. It consists of 10 items, measuring cognitive reappraisal (6 items) and expressive suppression (4 items) on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). Whereas cognitive reappraisal is considered as how one thinks about a situation to alter its emotional impact and expressive suppression is inhibiting outward emotional expressions. The ERQ demonstrates high reliability, with Cronbach's alpha of 0.79–0.90 for cognitive reappraisal and 0.68–0.76 for expressive suppression. It has strong construct and convergent validity, correlating with emotional well-being and social functioning. The ERQ is widely used in clinical and research settings to study emotion regulation.

### Statistical Analyses

Independent t-tests were performed to compare the scores of (i) social anxiety and (ii) dimension of emotion

regulation between yoga and non yoga practitioners using SPSS version 29.0.

## RESULT

After comparing the scores of (i) social anxiety, and (ii) emotion regulation in both group yoga practitioners and non- yoga practitioners. The result has shown that the scores of social anxiety, avoidance and expressive suppression ($p<0.01$) were found higher in non-yoga practitioners in comparison to yoga practitioners at ($p<0.01$) respectively. In contrast the scores of cognitive reappraisals were also found higher in the group of non-yoga practitioners ($p<0.01$). The details of the mean, SD and t-test are mentioned in Table 1.

**Table 1. Comparison in the levels of social anxiety and emotional regulation between yoga practitioners and non-yoga practitioners (n= 80 each)**

| Variables | yoga practitioners | | non yoga practitioners | | t-value | p- value |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | |
| Social anxiety | 24.64 | 15.6 | 35.49 | 13.5 | 4.6 | 0.00 |
| Avoidance | 24.97 | 16 | 38.9 | 13.5 | 6.1 | 0.00 |
| Cognitive reappraisal | 17.95 | 4.0 | 26.4 | 12.8 | 9.0 | 0.00 |
| Expressive suppression | 12.06 | 3.4 | 18.8 | 4.7 | 10.15 | 0.00 |

## DISCUSSION

The findings of this study demonstrate significant differences in social anxiety, avoidance, expressive suppression, and cognitive reappraisal between yoga practitioners and non-practitioners.

Non-yoga practitioners exhibited higher levels of social anxiety and avoidance behaviors suggesting that yogamay serve as a protective factor against social discomfort. The lower levels of social anxiety observed among yoga practitioners support existing neurobiological models of social anxiety disorder. According to Brühl et al. (2014), social anxiety is characterized by hyperactivity in the amygdala coupled with diminished prefrontal cortex regulation. Yoga's combination of physical postures, controlled breathing, and meditation may help normalize this neural circuitry through multiple pathways. The breath-focused components of yoga, particularly pranayama techniques, have been shown to enhance vagal tone and parasympathetic nervous system activity (Streeter et al., 2012), which may reduce the physiological hyperarousal characteristic of social anxiety. Furthermore, the mindfulness cultivated through yoga practice appears to strengthen prefrontal regulation of emotional responses (Tang et al., 2015), potentially creating a neurobiological buffer against social threat perception.

The observed reduction in avoidance behaviors among yoga practitioners may be understood through both behavioral and cognitive frameworks. From a behavioral perspective, regular participation in group yoga classes create natural, low-stakes exposure to social situations (Khalsa et al., 2012). This exposure occurs in a context that emphasizes non-judgment and present-moment focus, potentially facilitating desensitization to social fears without triggering the same level of distress as traditional exposure therapy. Cognitive models suggest that yoga helps modify maladaptive beliefs about social evaluation by cultivating metacognitive awareness - the ability to observe one's thoughts without becoming entangled in them (Goldin & Gross, 2010). This metacognitive shift may enable individuals to reappraise social situations more adaptively, reducing the need for avoidance behaviors.

The emotion regulation findings present a more complex picture that warrants careful consideration. The lower levels of expressive suppression among yoga practitioners align well with previous research demonstrating yoga's positive effects on emotional processing (Gard et al., 2012). Suppression has been consistently linked to negative psychological outcomes, including increased sympathetic nervous system activation and impaired cognitive functioning (John & Gross, 2004). Yoga's emphasis on interoceptive awareness (Farb et al., 2015) may help individuals develop greater comfort with emotional experiences, reducing the perceived need to suppress them. This is particularly relevant for social anxiety, where

suppression often serves as a maladaptive coping strategy that paradoxically increases anxiety symptoms over time (Hofmann, 2007).

The unexpected finding regarding cognitive reappraisal raises important theoretical questions. While reappraisal is generally considered an adaptive emotion regulation strategy (Gross & John, 2003), its higher levels among non-yoga practitioners in this study suggest several possible interpretations. One explanation is that yoga practitioners may rely less on cognitive restructuring because they have developed alternative regulation mechanisms through embodied practices. Price and Hooven (2018) propose that, mind-body interventions like yoga foster "bottom-up" regulation through somatic awareness, potentially reducing dependence on "top-down" cognitive strategies. Alternatively, this finding could reflect differences in how yoga practitioners experience and report their regulation strategies. Long-term yoga practice may lead to more automatic, less cognitively mediated forms of regulation that are not fully captured by self-report measures (Tang et al., 2015).

The mechanisms through which yoga influences social anxiety and emotion regulation likely involve multiple interacting pathways. At the physiological level, yoga has been shown to reduce cortisol levels (Pascoe et al., 2017) and increase heart rate variability (Tyagi & Cohen, 2016), indicators of improved stress resilience. These changes may create a physiological foundation for better emotion regulation by reducing baseline arousal levels. At the psychological level, yoga cultivates mindfulness and acceptance, which have been linked to decreased emotional reactivity (Sahdra et al., 2011). The physical postures (asanas) may also play an important role by enhancing body awareness and disrupting habitual patterns of tension associated with anxiety (Froeliger et al., 2012). Together, these effects may explain why yoga practitioners demonstrate healthier patterns of emotional responding compared to non-practitioners.

Several limitations of the current study should be acknowledged when interpreting these findings. The cross-sectional design precludes causal inferences about the relationship between yoga practice and psychological outcomes. While the results are consistent with yoga having beneficial effects, it is also possible that individuals with lower social anxiety and better emotion regulation skills are more likely to engage in yoga practice. The reliance on self-report measures introduces potential biases, particularly for assessing constructs like emotion regulation that may operate partly outside conscious awareness. The study also did not account for potential confounding variables such as general physical activity levels or other wellness practices that might co-occur with yoga. Additionally, the sample consisted primarily of university students, limiting generalizability to other age groups or clinical populations as well as the amount of yoga experience in months was not assessed.

Future research should address these limitations through longitudinal designs that track changes in social anxiety and emotion regulation as individuals begin yoga practice. Incorporating physiological measures such as cortisol assays or heart rate variability monitoring could provide objective indicators of stress regulation (Streeter et al., 2012). Neuroimaging studies examining changes in amygdala reactivity and prefrontal connectivity could help elucidate the neural mechanisms underlying yoga's effects (Froeliger et al., 2012). Qualitative methods might also be valuable for exploring how yoga practitioners experience and understand their emotion regulation processes, particularly given the unexpected reappraisal findings. Research comparing different styles of yoga (e.g., gentle vs. vigorous) could help identify which components are most therapeutic for social anxiety.

The clinical implications of these findings are noteworthy, particularly given the chronic nature of social anxiety disorder and the limitations of current treatments. While cognitive-behavioral therapy remains the gold standard (Clark & Wells, 1995), many individuals either do not respond adequately or lack access to treatment. Yoga represents a scalable, cost-effective intervention that could serve as either a standalone treatment for mild cases or an adjunct to traditional therapies for more severe presentations. The emotion regulation benefits observed in this study suggest that yoga may be particularly helpful for individuals who rely heavily on maladaptive strategies like suppression. Community-based yoga programs could potentially reach populations that might not seek traditional mental health services, reducing barriers to care.

From a theoretical perspective, these findings contribute to ongoing discussions about the nature of emotion regulation and its relationship to mental health. The dissociation between cognitive reappraisal and other positive outcomes in this study challenges simplistic notions about "adaptive" regulation strategies. Instead, it

supports more nuanced models that consider contextual factors and individual differences in regulatory preferences (Bonanno & Burton, 2013). The results also highlight the importance of incorporating somatic approaches into our understanding of emotion regulation, moving beyond purely cognitive models to embrace more embodied conceptualizations (Price & Hooven, 2018). In conclusion, this study provides compelling evidence that yoga practice is associated with lower social anxiety and healthier patterns of emotion regulation. While the exact mechanisms require further investigation, the findings suggest that yoga's multi-component nature - simultaneously targeting physiological, cognitive, and behavioral systems - may account for its broad benefits. The results have important implications for both clinical practice and theoretical models of social anxiety and emotion regulation. Future research should build on these findings by employing more rigorous methodologies and exploring potential moderators of treatment effects. As interest in integrative mental health approaches continues to grow, yoga appears poised to play an increasingly important role in addressing the global burden of anxiety disorders.

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