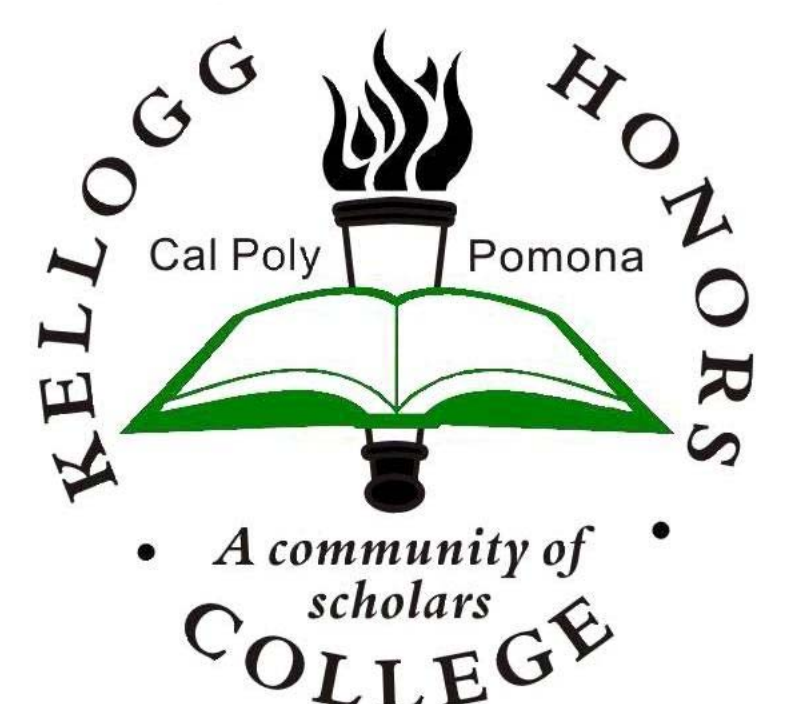


# A Comparative Study of Yoga, Stretching, Kickboxing and Stress Management

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## Introduction

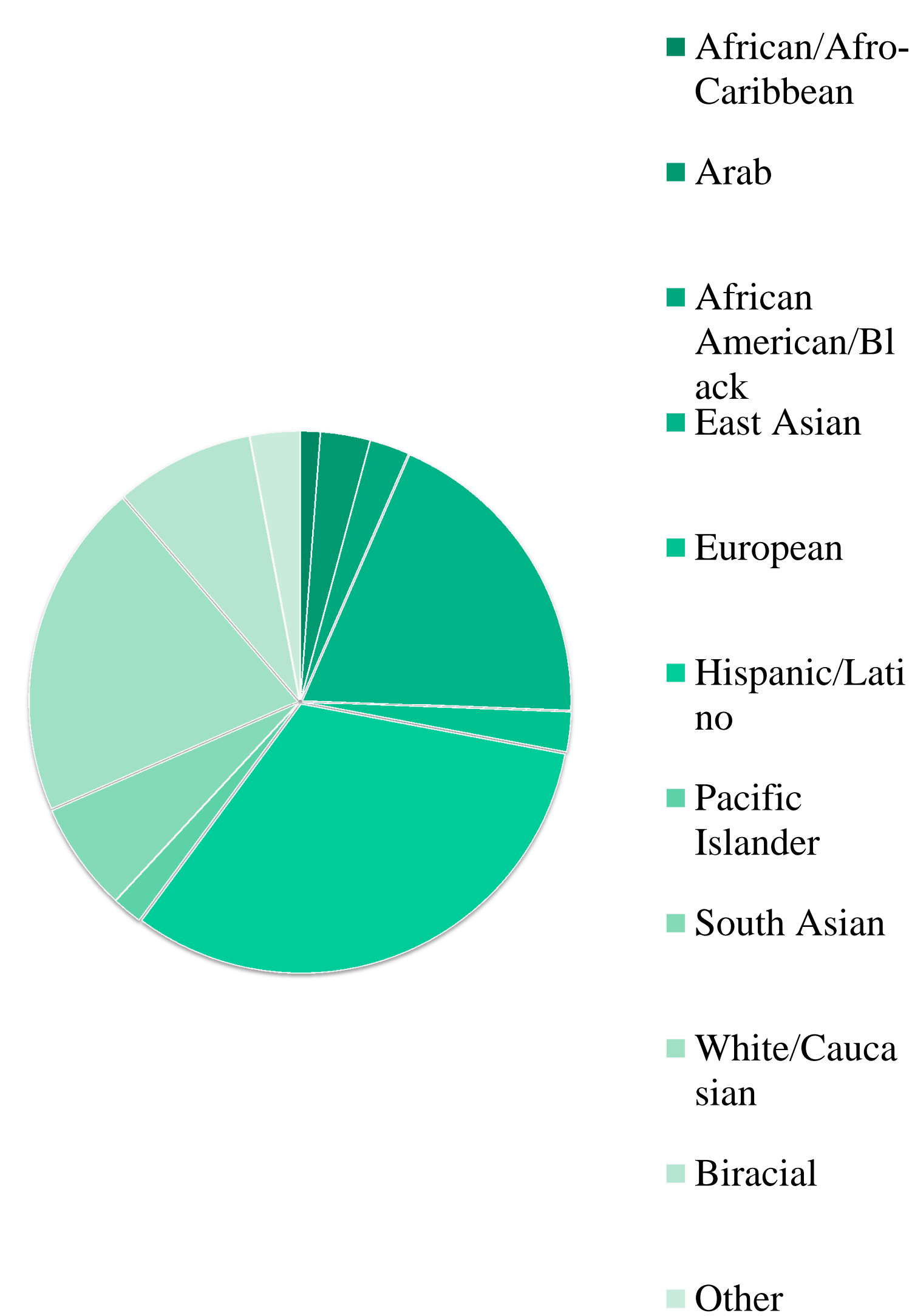
An ample amount of research indicates that practicing yoga reduces levels of stress and anxiety while increasing mindfulness (Sengupta, 2012). In a German study, three months of yoga practice improved reports of perceived stress, depression, anxiety, energy, fatigue and well-being among women who self identified as “emotionally distressed,” (Sengupta, 2012). Past research reveals yoga to be effective in increasing feelings of emotional, social, and spiritual well-being (Moadel, Shaw, Wylie-Rossett, et al., 2007). One study compared Hatha yoga to African dance and a Biology course (West, 2004). The dance and yoga class significantly reduced levels of perceived stress and negative mood, much more so than the Biology class. However, more research is needed comparing the practice of yoga to education alone, such as in a Stress Management lecture that focuses on the biological response of stress on the body rather than teaching stress reduction techniques. However, there is not an extensive amount of literature examining how effective yoga is in improving perceived stress, mindfulness or mood state when compared to other forms of exercise. The concept of time orientation is also rarely mentioned in empirical studies of yoga but is fundamental to its practice.

This preliminary study aimed to look at yoga’s relationship to perceived stress, mindfulness, mood state and time orientation when compared to other forms of exercise. Significant differences in levels of perceived stress, mood state, mindfulness and present time orientation were hypothesized between students who take Yoga, Stretching, Kickboxing and Stress Management courses. In particular, it was hypothesized that, compared to the other participants, students enrolled in the Yoga course would report greater mindfulness, less perceived stress, less negative mood state, and a stronger present time orientation.

## Method

**Procedure:** Participants were recruited from Yoga, Kickboxing, Stretching, and Stress Management courses to complete a survey at the end of class during the middle of the quarter, after five weeks of instruction.

**Participants:** Participants consisted of 167 college-age students in Yoga (n=42), Kickboxing (n=45), Stretching (n=37), and Stress Management (n=42) courses. The demographic breakdown of participants was as follows



**Measures:** Participants completed one survey measuring mindfulness (Brown & Ryan, 2003), perceived stress (Cohen, Kamarck & Mermelstein, 1983), mood state (Watson, Clark & Carey, 1988) and time orientation (Zimbardo & Boyd, 1999). The scales for mindfulness, perceived stress, mood state, and time orientation were modified to reduce the amount of questions on the survey due to a limited amount of time participants had to complete the survey.

## Results

A one-way ANOVA was computed to compare the levels of perceived stress, mindfulness, current mood state, change in mood state, and preferred time orientation of participants who took one of the four different courses. No significant difference was found between the courses for perceived stress, mindfulness or time orientation. A one-way ANOVA compared the levels of current positive mood state of participants. For positive mood state, a marginally significant difference was found between the four courses ( $F(3,164) = 2.543, p=.058$ ). This analysis revealed that participants in the Kickboxing course had a significantly higher positive mood ( $m=3.420, sd=.514$ ) than students in the Yoga course ( $m=2.520, sd=2.071$ ). For change in negative mood, a one-way ANOVA showed a highly significant difference was found between the four courses ( $F(3,164) = 5.785, p=.001$ ). This analysis revealed that participants in the Stretching course had a significantly greater decrease in negative mood state ( $m=2.246, sd=.658$ ) than students in the Stress Management course ( $m=2.650, sd=.564$ ). Also, the mean difference in level of change in negative mood between Kickboxing and Stress Management was significant ( $p=.001$ ). This analysis revealed that participants in the Kickboxing course had a significantly greater decrease in negative mood state ( $m=2.059, sd=.661$ ) than students in the Stress Management course ( $m=2.650, sd=.564$ ).

## Discussion

In summary, the participants did not differ significantly in their levels of perceived stress, mindfulness, negative mood state, change in positive mood state and preferred time orientation. The level of positive current mood between Kickboxing and Yoga was significant, such that participants in the Kickboxing course reported a higher positive mood than students in the Yoga course. The level of change in negative mood between Stretching and Stress Management was also significant such that, participants in the Stretching course reported a greater decrease in negative mood state than students in the Stress Management course. Also, the level of change in negative mood between Kickboxing and Stress Management was significant, such that participants in the Kickboxing course reported a greater decrease in negative mood state than students in the Stress Management course.

This study should be considered preliminary research due to some limitations. The participants were not randomly assigned to each class so there could be other variables, such as personality characteristics, that led individual participants to enroll in one class as opposed to another. Also, generalization of the results may be limited because participants consisted of a homogenous group of generally healthy young adults, while usually yoga therapy is used to treat individuals with a diagnosed disorder such as anxiety or depression. Change in mood state cannot be guaranteed because there was not initial data collected at the beginning of the quarter to compare to the data collected in the middle of the quarter. Any reported change is what was perceived by the individual participant. Lastly, since data for this study was collected in a cross sectional fashion, caution should be used when generalizing these results to what might result from long-term practice of Yoga, Stretching, Kickboxing, or prolonged study of stress mgmt.