

# Influence of yoga in reducing mental stress of adults: A study from Kerala, India

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**ABSTRACT:** Mental stress is used broadly to refer to the negative emotional, behavioural, and biological response to a perceived threat. Yoga is useful for cultivating mindfulness and reducing stress. A study was undertaken among a random sample of 40 adult yoga practitioners in Kozhikode, Kerala, India before and after practicing yoga to analyse the influence of yoga on the mental stress of the practitioners using an interview schedule containing the Perceived Stress Scale (Cohen et al, 1983), the respondent's age, sex and period of yoga practice. The stress score was computed as the total of the item scores in the scale. The data was analysed statistically. The results show that yoga contributes to up to about two times less mental stress for the respondents, when compared to before yoga practice. Women experience lower stress than men through yoga practice. A higher period of yoga practice is found to reduce the level of stress. Age showed no statistically significant influence on the stress score of the practitioners. It has been observed from the study that, in addition to less of negative emotions, yoga practitioners experience more of positive emotions also, which contribute to less stress for them observed in this study. Linear regression analysis showed that the

maximum contribution (83 %) of stress item scores to the variation in the total stress score is observed for five items in the scale, namely, upset since something happened unexpectedly, felt unable to control the important things in life, felt nervous and stressed, felt confident about ability to handle personal problems, and felt things are going his/her way. For the first three negative items mentioned here, only 10 to 15 % of respondents have experienced them fairly often and often after the practice of yoga. For the positive item mentioned above, namely, felt confident about the ability to handle personal problems, 70 % report experiencing it fairly often and often after yoga practice, while 65 % practitioners report experiencing fairly often and often the positive item, namely, felt that things are going his/her way. Yoga centres should also carry out studies on yoga / meditation with the assistance of experts and disseminate the scientific information generated from them to make people understand the utility of practicing such techniques. A coordinated effort by various yoga centres in this line is also worth considering. The Government of India should come forward to fund such studies for competent yoga centres through AYUSH, DST etc.

## INTRODUCTION

Psychological or mental stress is used broadly to refer to the negative emotional, behavioural, and biological response to a perceived threat. Mindfulness is reported to reduce stress and its consequences. Baer et al (2006) defines mindfulness as bringing one's complete attention to the experiences occurring in the present moment in a non-judgmental or accepting way. Research studies have consistently shown a positive relationship between trait mindfulness and psychological health (<https://www.examinedexistence.com/the-five-mental-and-psychological-benefits-of-yoga> -retrieved 29 July 2019). Mindfulness can lead to less intense stress responses (Baer et al, 2006). Yoga is a technique for cultivating mindfulness for the practitioners. Yoga improves our psychological wellbeing, prevents the onset of mental health conditions and reduces the effects of traumatic experiences.

In a national survey, over 85% of people who did yoga reported that it helped them relieve stress. Exercise is a very useful way to relieve stress, but yoga is different from spinning class or weight-lifting in that, it powerfully combines both physical fitness with an underlying philosophy of self-compassion and awareness. One of the main concepts in yoga is being non-judgmental toward both yourself and others, which is a powerful tool for stress relief, since much of our stress comes from us being hard on ourselves or frustrated with others (<https://www.psychologytoday.com/us/blog/urban-survival/201512/yoga-stress-retrieved> 29 July 2019).

A study was undertaken by the authors of this paper during 2019 to analyse the influence of yoga on the mental stress of the practitioners.

## Methodology

The study was carried out using an interview schedule among a random sample of 40 adult yoga practitioners of a yoga centre in Kozhikode District of Kerala State, India. The interview schedule contained the Perceived Stress Scale (Cohen et al, 1983), the respondent's age, sex and period of yoga practice. The Perceived Stress Scale consisted of 6 negative and 4 positive items which quantify stress. There were five-point responses for each item,

which were scored using the Likert equal interval method. The stress score of the respondents was computed as the total of the item scores in the scale. The interview schedule elicited the responses of the yoga practitioners on the ten items both before and after practicing yoga. The data was analysed statistically.

## Results and Discussion

**Table 1:** shows the mean total stress score of the respondents before and after starting yoga practice. While 90 % of people have a score in the range of 21 to 39 only before the practice of yoga, the score profoundly increases to 62 to 92 for 90 % of yoga practitioners after the practice of yoga (Table 1). A higher stress score indicates less stress. Hence, after the practice of yoga, people are 1.35 to 1.95 times less stressed than before starting yoga

Before starting yoga practice		After starting yoga practice	
Mean total stress score*	Respondents (%)	Mean total stress score*	Respondents (%)
13-20	10	44-58	10
21-39	90	62-92	90
Total	100	Total	100

\*Mean total stress score of the yoga practitioners, expressed as percentage of the maximum possible total stress score of 50 in this study

It may be seen from Table 2 that the mean total stress score of the 40 yoga practitioners after practice of yoga is 36.03, when compared to the score of 28.05 before yoga practice, with statistically significant difference existing between the two scores. This indicates that after the practice of yoga, the respondents have a total stress score, which is about 28 % higher than the total score before practicing yoga. This again implies less of stress after yoga practice

When comparing people with up to 2 years of yoga practice and 2-3 years of yoga practice, it can be made out from Table 4 that the latter category of yoga practitioners has a comparatively higher stress score than the former category, which is also different statistically. The influence of a higher period

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Of yoga practice in reducing the level of stress is evident from this.

**Table 2:** Statistical test of significance of the difference in total stress score before and after practice of yoga

Details	Before starting yoga practice	After starting yoga practice
Mean total stress score	21-39	21-39
Statistical t value	28.05	36.03
		-6.59
	Statistically significant at p<0.001	

Table 3 shows the data of the mean total stress scores of men and women. Women show a higher stress score of 37.14 than men (34.88), indicating that they experience less stress than men after the practice of yoga. However, the difference in the scores of men and women is near marginal statistical significance only, since the t value is significant at p<0.20 only (Table 3).

**Table 3:** Statistical test of significance of the difference in total stress score of men and women

Details	Men	Women
Mean total stress score	34.88	37.14
Variance	35.86	23.93
Statistical t value		-1.29
	Statistically significant at p<0.20	

When comparing people with up to 2 years of yoga practice and 2-3 years of yoga practice, it can be made out from Table 4 that the latter category of yoga practitioners has a comparatively higher stress score than the former category, which is also different statistically. The influence of a higher period of yoga practice in reducing the level of stress is evident from this.

**Table 4:** Statistical test of significance of the difference in total stress score of people with different periods of yoga practice

Details	up to 2 years of yoga practice	2-3 years of yoga practice
Mean total stress score	36.61	40.71
Variance	16.42	24.57
Statistical t value		-1.99
	Statistically significant at p<0.05	

Age of the respondents did not show statistically significant influence on the stress scores of the yoga practitioners.

The responses of the yoga practitioners on experiencing the ten items in the stress scale before and after the practice of yoga. It can be seen that for all the negative items in (item no. 1, 2, 3, 6, 9 and 10), the percentage of yoga practitioners experiencing them fairly often as well as very often has drastically reduced after yoga practice, when compared to before yoga. This indicates that they are less stressed on account of these negative emotions after the practice of yoga.

Similarly, it can be seen from that the proportion of yoga practitioners experiencing fairly often as well as very often the positive item no. 4, 5, 7 and 8 in the scale (namely, felt confident about ability to handle personal problems, felt that things were going your way, able to control irritations in life, felt that you were on top of things), which indicate less of stress, has increased very much after they started yoga practice, compared to before yoga. This indicates that the respondents experience more of positive emotions after the practice of yoga, which will contribute to less of stress for them.

The data also reveals that for the negative stress items 1 to 3 (namely, upset since something happened unexpectedly, felt unable to control the important things in life, felt nervous and stressed), only 10 to 17.5 % of respondents have reported experiencing them fairly often and often after the practice of yoga, when compared to 37.5 % to 55 % respondents reporting them in this manner before yoga practice. Similarly, the proportion of respondents reporting experiencing fairly often and very often the negative stress items 9 and 10 (namely, angry because of things that were outside your control, felt that difficulties were piling up so high that they could not be overcome) has reduced considerably from 40 to 42.5 % before yoga practice to 12.5 to 15 % after they started yoga practice. This implies that the degree of experience of

negative stress items has also reduced considerably for the respondents after practice of yoga.

These findings on positive and negative stress items logically explain the higher stress score obtained by the yoga practitioners after yoga practice (shown in Table 2), indicating less of mental stress for the respondents due to yoga practice.

A small correlation (r) value of 0.32 only is there between the score of the negative item 1 (upset since something happened unexpectedly) and the total stress score. However, shows a comparatively higher r value of 0.60 for negative item 6 (could not cope with all the things to be done) and 0.62 for negative item 9 (been angry because of things that were outside your control) with the total stress score. For the negative stress item 1, only 40 % of the yoga practitioners give the responses -Never and almost never. However, a comparatively higher proportion of the yoga practitioners (55 %) have replied as -Never and almost never for the negative item 6, while 52.5 % have replied in this manner for the negative item 9. This may be the reason for the higher correlation (r) values of 0.60 and 0.62 with the total stress score for these two negative items, when compared to the r value of 0.32 for the negative item 1

Linear regression analysis of the scores of the ten items in the stress scale with the total stress score after practice of yoga showed that the maximum contribution (83 % - R2 of 0.83) significant at p< 0.001) of item scores to the variation in the total stress scores of the yoga practitioners is observed for items 1 to 5

The data reveals that after the practice of yoga, for the negative stress items 1 to 3 namely, upset since something happened unexpectedly, felt unable to control the important things in your life, felt nervous and stressed, only 10 to 17.5 % of respondents (people) have replied as experiencing them fairly often and often. Again, for the positive item 4, namely, felt confident about the ability to handle personal problems, 70 % people report experiencing it fairly often and often and 65 % experience fairly often and often the positive item 5, namely, felt that things are going my way. Such a favourable trend with respect to experiencing both the negative items and the positive items mentioned above (which indicate a good mental state / less mental stress for the yoga practitioners) may be the reason why the scores of these five items in the stress scale are explaining a very high proportion (83%) of the variation in the total stress score of the respondents after practice of yoga

### Conclusions

Yoga practice is found to contribute to up to about two times less mental stress, compared to before yoga practice. Women experience lower stress than men after the practice of yoga. The influence of a higher period of yoga practice in reducing the level of stress is evident from the study. Age showed no statistically significant influence on the stress score of the yoga practitioners. The percentage of yoga practitioners experiencing fairly often as well as very often all the negative items in the stress scale used in this study has drastically reduced after yoga practice, when compared to before practice. This indicates that they are less stressed due to these negative emotions after the practice of yoga. On the other hand, the percentage of yoga practitioners experiencing fairly often as well as very often the positive items in the stress scale increased very much after than before yoga practice. This implies that, in addition to experiencing less of negative emotions, they are experiencing more of positive emotions also through the practice of yoga, which can be considered to be contributing to less stress for them, as observed in this study. Linear regression analysis showed that the maximum contribution (83 %) of stress item scores to the variation in the total stress score of the yoga practitioners is observed for the following five items in the scale, namely, upset since something happened unexpectedly, felt unable to control the important things in life, felt nervous and stressed, felt confident about ability to handle personal problems, and felt things are going his/her way. For the first three negative items mentioned here, only 10 to 15 % of respondents have experienced them fairly often and often after the practice of yoga. After yoga practice, for the positive item, namely, felt confident about the ability to handle personal problems, 70 % yoga practitioners report experiencing it fairly often and often, while 65 % report experiencing fairly often and often the positive item, namely, felt that things are going his/her way. This indicates the effect of yoga in reducing negative thoughts and promoting positive ones, thus contributing to stress relief, as observed in the study.