

## Influence of the Practice of Yoga on Positive and Negative Affect: A Study

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### ABSTRACT

Positive affect refers to one's propensity to experience positive emotions, while negative affect indicates feeling negative emotions in life. Studies have reported that yoga can improve the positive affect and reduce the negative affect among people. In this context, this study has attempted to analyse the influence of yoga on positive and negative affect among 100 practitioners using a questionnaire containing the tool to work out Positive and Negative Affect and the characteristics of the yoga practitioners, namely, sex, age, marital status, whether they had psychological problem earlier, whether they did yoga before joining the present yoga class, and period of yoga practice in the present yoga class. The results indicate the influence of yoga in helping people to achieve more positive affect and less of negative affect in their lives. Statistically significant influence of not having any psychological problem earlier, experience in yoga practice before joining the present yoga class, and higher period of yoga practice in the present class in getting higher Positive Affect score, Negative Affect score, and total Positive and Negative Affect score by the yoga practitioners is evident from the study. However, statistically significant difference was not observed in these scores between yoga practitioners based on their sex, age and marital status. Suitable measures should be adopted by Governments, social organizations etc. to motivate people to practice yoga and achieve better wellbeing in their lives.

**Keywords:** *Yoga, Positive Affect, Negative Affect, Positive and Negative Affect*

Positive affect refers to one's propensity to experience positive emotions in life. Negative affect indicates feeling negative emotions. Yoga is a practice contributing to mental and physical health. Yoga practices can reduce the negative affect and increase the positive affect of the practitioners (Lakshmi Narasimhan et al., 2011). Integrated yoga module has been reported to be useful for home guards to improve the positive affect and decrease the negative affect score (Amarnath et al., 2016). Another study showed significant increase in positive affect and negative affect in experimental (practicing yoga) group as compared to control (not practicing yoga) group's positive affect and negative affect (Mohan and Kumari, 2018). The results of a study indicate the effect of yoga in improving positive feelings and reducing negative feelings among the practitioners (Madhava Chandran et al., 2022).

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## METHODOLOGY

The study has attempted to analyse the influence of yoga on positive and negative affect of the practitioners. It was carried out among 100 yoga practitioners of Patanjali Yoga Research Centre, Kozhikode, Kerala, India using a questionnaire. The questionnaire contained the tool to work out Positive and Negative Affect (Andrew Mackinnon et al., 1999) and the characteristics of the yoga practitioners, namely, sex, age, marital status, whether they had psychological problem earlier, whether they did yoga before joining the present yoga class, and period of yoga practice in the present yoga class. The data was analyzed as proportion, scores and through statistical test.

## RESULTS

Statistical significance of the difference in mean total Positive and Negative Affect (PNA) score based on three characteristics of the yoga practitioners, namely, existence of psychological problem earlier, doing yoga before joining the present yoga class, and period of yoga practice in the present class are shown in Table 1, 2 and 3 respectively.

**Table 1. Statistical test of significance of total PNA score based on existence of psychological problem earlier**

Mean total PNA* score of the yoga practitioners	
Having psychological problem earlier	Not having psychological problem earlier
33.3	39.8
t stat = - 4.38. Sig $p < 0.01$	

\* Positive and Negative Affect Score

**Table 2. Statistical test of significance of total PNA score based on doing yoga before joining the present yoga class**

Mean total PNA* score of the yoga practitioners	
Who did yoga before joining the present yoga class	Who did not do yoga before joining the present yoga class
40.0	34.4
t stat = 2.85. Sig $p < 0.05$	

**Table 3. Statistical test of significance of total PNA score based on period of yoga practice in the present class**

Mean total PNA* score of the yoga practitioners	
Period of yoga practice in the present class (months)	
3 to 6	10 to 12
34.,3	39.2
t stat = - 2.49. Sig $p < 0.05$	

Table 4 shows the statistical significance of the difference in mean total Positive Affect (PA) score of the yoga practitioners based on existence of psychological problem earlier, doing yoga before joining the present yoga class, and period of yoga practice in the present class

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**Table 4. Statistical test of significance of total positive affect score based on different characteristics**

Mean total PA* score of the yoga practitioners	
Having psychological problem earlier	Not having psychological problem earlier
17.0	20.2
t stat = - 5.0. Sig $p < 0.01$	
Mean total PA score of the yoga practitioners	
Who did yoga before joining the present yoga class	Who did not do yoga before joining the present yoga class
20.2	17.6
t stat = 2.9. Sig $p < 0.01$	
Mean total PA score of the yoga practitioners	
Period of yoga practice in the present class (months)	
3 to 6	10 to 12
17.5	19.8
t stat = - 2.4. Sig $p < 0.05$	

\* Positive Affect Score

Statistical significance of the difference in mean total Negative Affect (NA) score of the yoga practitioners based on existence of psychological problem earlier, doing yoga before joining the present yoga class, and period of yoga practice in the present class is shown in Table 5.

**Table 5. Statistical test of significance of total negative affect score based on different characteristics**

Mean total NA* score of the yoga practitioners	
Having psychological problem earlier	Not having psychological problem earlier
16.3	19.7
t stat = - 3.6. Sig $p < 0.01$	
Mean total NA score of the yoga practitioners	
Who did yoga before joining the present yoga class	Who did not do yoga before joining the present yoga class
19.8	16.8
t stat = 2.7. Sig $p < 0.05$	
Mean total NA score of the yoga practitioners	
Period of yoga practice in the present class (months)	
3 to 6	10 to 12
16.8	19.3
t stat = - 2.4. Sig $p < 0.05$	

\* Negative Affect Score

Table 6 shows the categorization of yoga practitioners under different ranges of PNA, PA and NA scores (expressed as % of the maximum possible score under the study) and the proportion of respondents reporting the existence of psychological problem earlier under various score ranges.

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**Table 6. Categorization of yoga practitioners under different ranges of PNA, PA and NA scores based on existence of psychological problem earlier**

<b>Range of total PNA score*</b>	<b>Respondents (%)</b>	<b>Respondents (%) having psychological problem earlier</b>
64-66	30	100
72-78	40	25.0
80-88	30	Nil
Total	100	
<b>Range of total PA score*</b>		
64-68	30	100
72-76	30	33.3
80-88	40	Nil
Total	100	
<b>Range of total NA score*</b>		
60-68	40	75.0
72-76	30	33.3
80-88	30	Nil
Total	100	

\*expressed as % of the maximum possible score under the study

The categorization of yoga practitioners under different ranges of PNA, PA and NA scores (expressed as % of the maximum possible score under the study) and the proportion of respondents reporting practice of yoga before joining the present yoga class under various score ranges is shown in Table 7.

**Table 7. Categorization of yoga practitioners under different ranges of PNA, PA and NA scores based on doing yoga before joining the present yoga class**

<b>Range of total PNA score*</b>	<b>Respondents (%)</b>	<b>Respondents (%) who had done yoga before joining the present yoga class</b>
64-66	30	Nil
72-78	40	50.0
80-88	30	100
Total	100	
<b>Range of total PA score*</b>		
64-68	30	Nil
72-76	30	67.0
80-88	40	75.0
Total	100	
<b>Range of total NA score*</b>		
60-68	40	25.0
72-76	30	33.3
80-88	30	100
Total	100	

\*expressed as % of the maximum possible score under the study

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Table 8 shows the categorization of yoga practitioners under different ranges of PNA, PA and NA scores (expressed as % of the maximum possible score under the study) and the proportion of respondents reporting different periods of yoga practice in the present class under various score ranges.

**Table 8. Categorization of yoga practitioners under different ranges of PNA, PA and NA scores based on the period of yoga practice**

Range of total PNA score*	Respondents (%)	Period of yoga practice in the present class (months)
64-66	30	3 to 5
72-78	30	4 to 12
80-88	40	10 to 12
Total	100	
Range of total PA score*		
60-68	30	3 to 6
72-76	30	4 to 12
80-88	40	10 to 12
Total	100	
Range of total NA score*		
60-68	40	3 to 6
72-76	30	10 to 12
80-88	30	10 to 12
Total	100	

\*expressed as % of the maximum possible score under the study

Statistically significant difference was not observed in the mean PNA score, PA score and NA score between yoga practitioners based on their sex, age and marital status

## **DISCUSSION**

The emotional components in this study under the head “Positive Affect (PA)” include Inspiration, Alertness, Excitement, Enthusiasm and Determination. The components under the head “Negative Affect (NA)” include Fear, Feeling Upset, Nervous, Scared and Distressed.

The results presented in Table 1 indicate that statistically significant difference exists between the mean total Positive and Negative Affect (PNA) score (sum total of Positive Affect and Negative Affect scores) of yoga practitioners who report the existence of psychological problem (score of 33.3) and those who did not have the problem earlier (39.8). This implies that those who did not have psychological problem earlier were able to achieve more improvement in positive emotions as well as reduction in negative emotions through yoga practice, when compared to those who had the problem. People with psychological burdens might be less willing to participate fully in intensive yoga interventions. Relatively low participation of such persons in yoga sessions were also observed in some of the analysed studies (Arndt Bussing et al., 2012).

It can be made out from Table 2 that those who had experience of practicing yoga before joining the present yoga class have a higher PNA score (40) than those who had not done it (34.4), with statistically significant difference in the scores. Similarly, Table 3 shows that statistically significance exists between the mean PNA score of respondents with 3 to 6 months of yoga practice in the present class (34.3) and those who have 10 to 12 months of

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yoga practice (39.2). These results indicate the influence of more experience in yoga practice in improving the positive emotions and reducing the negative emotions considered in this study. Years of yoga practice was significantly associated with reduced abdominal respiratory rate when facing negative pictures, speaking in favour of reduced arousal with yoga experience (Elisabeth Mocanu et al., 2018).

The influence of three characteristics of the yoga practitioners, namely, non-existence of psychological problem earlier, doing yoga before joining the present yoga class, and a higher period of yoga practice in the present class in achieving more Positive Affect through yoga practice is evident from the statistically significant higher Positive Affect (PA) scores of the respondents having these characteristics (Table 4). Similarly, the effect of the above characteristics in reducing the Negative Affect of the yoga practitioners is evident from the statistically significant higher NA scores of the respondents having these characteristics (Table 5). These results also help to confirm the influence of these three characteristics in contributing to a higher total Positive and Negative Affect (PNA) score for the yoga practitioners, which has been discussed in the previous two paragraphs.

Table 6 showed the categorization of yoga practitioners under different ranges of Total PNA (Positive and Negative Affect), PA (Positive Affect) and NA (Negative Affect) scores (expressed as % of the maximum possible PNA, PA and NA scores in the study) and the proportion of respondents under various score ranges reporting the existence of psychological problem earlier.

It can be made out from Table 6 that a total of 70 % yoga practitioners have a comparatively higher total PNA score in the range of 72 to 88 % of the maximum possible PNA score (40 % with PNA score of 72 to 78 % and 30 % with score of 80 to 88 %). Only 30 % respondents have a lower total PNA score in the range of 64 to 66 %. Table 6 also shows that while all the yoga practitioners under the lowest score range of 64 to 66 % report the existence of psychological problems earlier, the figures under the score ranges- 72 to 78 % and 80 to 88 % of the maximum possible PNA score are 25 % and nil respondents respectively. These results further establish the influence of psychological problem existing earlier in reducing the Positive Affect and increasing the Negative Affect among the yoga practitioners.

Similarly, it can be inferred from Table 6 that comparatively higher proportion (total 70%) of yoga practitioners have PA score in the range of 72 to 88 % of the maximum possible score (30% in the score range of 72 to 76 % and 40 % in the range of 80 to 88 %). Here also, only 30% of yoga practitioners have a lower PA score range of 64 to 66 % (Table 6). Similar to the trend of PNA scores, while all the yoga practitioners in the lowest PA score range of 64 to 66% report psychological problems earlier, only 30 % of respondents in the PA score range of 72 to 76 % had the problem, while none of the yoga practitioners under the highest PA score range of 80 to 88 % report psychological problem (Table 6). The influence of previous psychological problems in reducing the positive affect among the yoga practitioners is evident from this.

It is also evident from Table 6 that a total of 60 % yoga practitioners fall in the NA score range of 72 to 88% of the maximum possible score (30% in the 72 to 76 % and 30 % in the 80 to 88 % score range), while only 40 % of yoga practitioners have the lowest NA score range of 60 to 68 %. The table also shows that in this lowest score range, 75 % respondents reported the existence of psychological problem earlier, while only 33 % reported this problem in the score range of 72 to 76%, and no one reported the problem in the highest NA score range of 80 to

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88% of the maximum possible score. The influence of previous psychological problems in not being able to achieve much reduction in the negative affect through yoga practice can be inferred from this result.

The above mentioned results on positive and negative affect is the reason for the lowest PNA score range of 64 to 66 % (of the maximum possible score) observed in the case of respondents who reported the existence of psychological problems earlier (Table 6)

It can be inferred from the data shown in Table 7 that while all the yoga practitioners under the highest PNA score range of 80 to 88 % of the maximum possible score report doing yoga before joining the present yoga class, 40 % of the practitioners under the second highest PNA score range of 72 to 78 % report doing yoga before. However, none of the yoga practitioners having the lowest PNA score range of 64 to 66 % of the maximum possible score have done yoga before joining the present class (Table 7). Similarly, the proportion of yoga practitioners who report doing yoga before joining the present yoga class decreases from 75 % under the PA score range of 80 to 88% to 67% under the score range of 72 to 76 % and Nil under the PA score range of 64 to 68 % of the maximum possible PA score (Table 7). Similarly, there is a decrease in the proportion of yoga practitioners who have reported doing yoga before joining the present yoga class from the highest NA score range of 80 to 88% to the score range of 60 to 68 % of the maximum possible NA score (Table 7). These results indicate that earlier experience in yoga is contributing to more positive affect and less negative affect for the practitioners.

It can be made out from the results presented in Table 8 that the period of yoga practice of the respondents in the present class decreases from 10 to 12 months under the highest total PNA score range of 80 to 88 % (of the maximum possible PNA score) to 4 to 12 months under the 72 to 78 % range, and 3 to 5 months under the 64 to 66 % score range. A similar decreasing trend in the period of yoga practice is observed in the case of total PA score ranges also (Table 8). In the case of total NA score, while 10 to 12 months of yoga practice is reported by respondents under the higher score ranges of 80 to 88 % and 72 to 76 % of maximum NA score, the respondents under the lowest NA score range of 60 to 68 % have done yoga for 3 to 6 months only (Table 8). These findings imply that higher period of yoga practice gives more positive affect and less negative affect for people.

### CONCLUSION

This study has shown the influence of the practice of yoga in helping people to have more positive affect and less of negative affect in their lives. Statistically significant influence of not having any psychological problem earlier and more experience in yoga practice (either before or in the present yoga class) in getting higher Positive Affect score, Negative Affect score and total Positive and Negative Affect score for the yoga practitioners is evident from the study. Considering the favourable effects of yoga, suitable measures should be adopted by Governments, social organizations etc. to motivate people to practice it and achieve better wellbeing in their lives.

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### **Conflict of Interest**

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

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