

Effect of gunas on stress and mindful eating

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ABSTRACT

The Indian perspective of personality as represented by the exemplary Triguna theory classifies the gunas- sattva, rajas, and tamas, as elements of personality. Eating behaviours has been a central concept in this theory. Each of the gunas have varied characteristics including the patterns of food consumption, wherein the emphasis has been on how such behaviours impact our health. Given the fast-paced life in present times, there is little escape from stress and whether we appraise events as stressful is also influenced by an individual's personality traits. Thus, in the present study, an attempt has been made to study the effect of gunas and gender on perceived stress and mindful eating among young adults. For this purpose, the data was collected from 158 subjects (Females = 79 and Males = 79) and was analyzed using factorial ANOVA. The results revealed significant effects of gunas on perceived stress and mindful eating practices. It was found that individuals with a dominance of sattva guna experience less stress as compared to the other two gunas. Furthermore, the results revealed that individuals with sattva and rajas guna engage more in mindful eating practices as compared to individuals with tamasic guna.

Keywords: *Gunas, Sattva, Rajas, Tamas, Stress, Mindful Eating*

Indian psychology with its indigenous origin and ethos has a universal appeal, central to this indigenous system is the understanding and description of human personality. In the Indian psychological thought, the most important, theoretical proposition to understanding personality comes from the *sāṃkhya* system of Indian philosophy, which understands personality as based on the triguna (three elements). Major ancient Indian scriptures including the Upanishads, Puranas, Yogasturas, and the Bhagavad Gita expanded this understanding of personality (Jain et al., 2016).

Triguna Theory of Personality

The typology of personality is based on trigunas, that is, the triguna theory of personality comprises the three gunas or the three basic personality traits. They are the i) Sattva guna ii) Rajas guna iii) Tamas guna (Shankar et al., 2017). All the three gunas are present in each individual in different degrees. The dominance of one or the other guna may lead to a

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Received: October 27, 2020; Revision Received: December 21, 2020; Accepted: December 31, 2020

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particular type of behaviour. Each guna embodies a different way of internal feeling, outward manifestation, and relation with the world (Wilberg, 2007).

1. **Sattva Guna:** is associated with balance, peace, equanimity, and cleanliness. Therefore, a sattvic person is more likely to be truthful, dutiful, disciplined and a spiritual being (Wolf, 1999; Srivastava, 2012). They ordinarily indulge in the consumption of pure and fresh vegetarian food including, fruits and nuts, and refrain from too rich or spicy food (Korada, 2010).
2. **Rajas Guna:** is associated with high intensity, dynamics, and passion and is marked by agitation, anxiety, nervousness. Therefore, a rajasic person is more likely to be highly active, have a desire for gratification, little interest in spiritual elevation, and envy of others (Wolf, 1999). Individuals with a rajasic personality usually consume food that is high on spices and non-vegetarian (Korada, 2010).
3. **Tamas Guna:** is associated with idleness, indecisiveness, persistence, and speculations. Therefore, a tamasic person is more likely to be lethargic, tedious, depressed, and vindictive (Srivastava, 2012). Individuals with a tamasic personality usually consume food that is overcooked, stale, fermented, or stored (Korada, 2010).

The three gunas model has marked structural overlaps with some of the factors of the personality of Cattell's Model (Singh, 2008). Between triguna and Eysenck's theory, sattva was negatively correlated with extraversion and positively with introversion. Rajas were positively related to extraversion. Tamas and neuroticism were significantly related (Mohan & Sandhu, 1988; Swaroop et al., 2017). Brown and Chatterjee (1999) have focused on the similarity between Kohlberg's stages of moral development and the Guna theory as the stages of moral development talks about the concepts of values, morality, justice, etc., which are also mentioned in the Guna theory.

Stress

Selye (1936) originally defined stress as the "non-specific response of the body to any demand placed on it" (p. 32). More commonly today, stress is understood as a negative emotion, experienced when demands of the environment exceed an individual's abilities to deal with them and are usually accompanied by biochemical, physiological, cognitive, and behavioral changes (Taylor, 2015). Perceived Stress, on the other hand, refers to feelings and thoughts that an individual has about how much stress they are under a given point of time or a period. In other words, it is the degree to which situations in one's life are appraised as stressful, and it is also believed that 'Perceived Stress' incorporates feelings of uncontrollability, unpredictability, overloading, and the confidence that one has in their abilities to deal with life's difficulties (Cohen, et al., 1983).

Mindful Eating

The concept of mindfulness and eating together makes mindful eating an essential part of life. Framson et al. (2009, p.1439) defined mindful eating as "non-judgmental awareness of physical and emotional sensations while eating or in a food-related environment." It means being aware in the present moment when one is eating; directing attention to the senses, including physical and emotional sensations. There are no rules to be followed, it just involves focusing on the process of eating, and not what is eaten (Khan & Zadeh, 2014). The previous research reveals that practicing mindful eating enables individuals to identify why they eat, notice hunger and satiety cues, and give appropriate reactions to them. It also makes it easier to observe if external and internal stimuli, such as the sight of an advertisement, feeling bored or stressed are misinterpreted as hunger (Allirot et al., 2017; Hart, 2014; Papias et al., 2015).

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The effect of gunas on mindful eating and perceived stress has not been fully explored, although Cotter and Kelly (2018), have found that individuals higher (vs lower) in mindfulness may report a weaker relationship between stressors and stress-related eating. As for perceived stress, an association between disordered eating or uncontrollable eating such as overeating, binge eating, hunger, and disinhibition, and comfort eating has been found in several studies. Perceived stress has also been correlated with emotional eating and comfort eating (Finch & Tomiyama, 2015; Jarvela-Reijonen et al., 2016). Additionally, mindfulness-based eating interventions have brought about significant changes in weight, eating behaviour, and psychological distress in obese individuals, indicating that mindful eating and stress do share an effective relation (Dalen et al, 2010). Similarly, gender differences were reported in relation to perceived stress in a cross-sectional study on women aged (18-50) done in Gujrat, where the authors evaluated their anxiety and stress scores. The study found that women in general experience more anxiety and stress than males (Patel et. al, 2017). Wardle et.al (2004), in his study of the food choice behavior of young adults from 23 countries found that women are more likely to give importance to healthy eating, consuming more fruit and fiber, and avoiding high-fat foods as compared to men. Also, Giannopoulou et.al (2020), found that the scores received by females on the mindful eating questionnaire were significantly higher than males. Therefore, taken together these studies do raise the possibility of a potential effect of gunas and gender on perceived stress, and mindful eating, however, this has not yet been fully elucidated. Thus, in this study, we attempt to explore the same.

Objective: To explore the effect of gunas and gender on perceived stress and mindful eating among young adults.

Hypotheses

- H1: There will be a significant effect of gunas on perceived stress among young adults.
- H2: There will be a significant effect of gunas on mindful eating among young adults.
- H3: There will be a significant effect of gender on perceived stress among young adults.
- H4: There will be a significant effect of gender on mindful eating among young adults.
- H5: There will be a significant interaction effect of gunas and gender on perceived stress among young adults.
- H6: There will be a significant interaction effect of gunas and gender on mindful eating among young adults.

METHODOLOGY

Variables

In the present study, there are two independent variables: gunas and gender. The gunas are further divided into three categories: sattva, rajas, and tamas. The second variable, gender is also divided into two categories: females and males. The two dependent variables in this study are perceived stress and mindful eating.

Sample

The subjects were selected based on the purposive sampling technique. The age range of the subjects was between 18 to 25 years. A total of 158 young adults (79 females and 79 males), who met the inclusion criteria, were taken for the study.

Tools

1. **'G' or Gita Inventory of Personality** by Das (1991) consists of 10 items indicating the three different personality types according to the Triguna Theory. It has three

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responses to each item, with each response corresponding to a particular Guna. A high score obtained on the inventory indicates Sattvic guna whereas lower scores indicate Rajasic or Tamasic guna. The test-retest reliability of this scale is 0.60. This inventory helps in segregating subjects in accordance with the dominance of either of the three gunas: sattva, rajas, or tamas.

- 2. Perceived Stress Scale (PSS)** by Cohen et al. (1983) is a 10-item scale measuring the degree to which an individual appraises events in his life as stressful. The scale uses a frequency rating in which individuals rate how often they have experienced events as stressful during the last month, with options ranging from Never to Very Often. The higher the score, the more is the level of perceived stress. The reliability and validity of the scale are satisfactory, with Cronbach alpha 0.78.
- 3. The Mindful Eating Questionnaire** by Framson et al. (2009) is a 28-item questionnaire designed to measure mindful eating. It has five subscales namely, Disinhibition, Awareness, External Cues, Emotional Response, and Distraction. All responses are made on a 4-point scale ranging from never/rarely to usually/always. Higher scores on MEQ indicate more mindful eating. The questionnaire has adequate construct validity and reliability with good internal consistency reliability for the subscales: disinhibition (0.83), awareness (0.74), external cues (0.70), emotional response (0.71), and distraction (0.64).

Procedure

The participants were ensured about the confidentiality of their data and informed consent was taken from them. The demographic details were collected, and afterward, they were provided with the three standardized and self-administered tools GIP, PSS, and MEQ.

RESULTS

Data collected was analyzed using factorial ANOVA (2X3) to compare the main effects of Gunas: Sattva, Rajas, and Tamas and Gender: Females and Males as well as their interaction effects on the perceived stress and mindful eating practices. The results were obtained separately for both the dependent variables.

Table 1 Descriptive statistics of the effect of gunas and gender on perceived stress

	Females			Males			Total		
	Mean	SD	n	Mean	SD	n	Mean	SD	n
Sattva	12.80	4.14	5	12.33	3.05	3	12.62	3.54	8
Rajas	18.37	4.38	41	15.48	4.62	23	17.33	4.65	64
Tamas	21.30	3.94	33	19.58	5.97	53	20.24	5.33	86
Total	19.24	4.70	79	18.11	5.90	79	18.68	5.34	158

Prior to the conduction of ANOVA, the assumptions related to it were tested, and the data was found to be normally distributed (Shapiro-Wilk test at $p > 0.05$), and the data also met the assumption of the normality of residuals (Shapiro-Wilk test at $p > 0.05$). Levene's test showed that the variance of the group was equal [$F(5, 152) = 1.30, p = 0.26$]. There were outliers in the data, and we analyzed the data with and without the outliers, and the results obtained were the same in both cases. Therefore, the outliers did not have a great influence on the distribution of the variable and hence were not removed from the overall data set.

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Table 2 Effect of Gunas and Gender on Perceived Stress: ANOVA

Source	Type III Sum of Squares	df	Mean of Squares	F
Gunras	715.31	2	357.65	14.76**
Gender	39.56	1	39.56	1.63
Gunras*Gender	17.09	2	8.54	.35
Error	3682.55	152	24.22	
Corrected Total	4486.53	157		

Note: * significant at the 0.05 level (2-tailed).

**significant at the 0.01 level (2-tailed).

The main effect of gunas yielded an effect size of .163 indicating that 16.3 % of the variance in the perceived stress scores was explained by the gunas [F (2, 152) = 14.76, $p < 0.001$]. This suggests that there is a significant effect of gunas on perceived stress. The main effect of the gender turned out to be non-significant [F (1, 152) = 1.63, $p = .20$], indicating that there was no significant effect of gender on perceived stress. The interaction effect of gunas*gender was not significant [F (2, 152) = .35, $p = .70$], indicating that there was no combined effect for gunas and gender on the perceived stress among young adults. (Table 2)

Table 3 Tukey HSD Comparison for the perceived stress scores in the three gunas

		Mean Diff.	Std. Error.	95% confidence interval	
				Lower Bound	Upper Bound
Sattva	Rajas	-4.70*	1.84	-9.07	-.33
	Tamas	-7.62*	1.81	-11.93	-3.31
Rajas	Sattva	4.70*	1.84	.33	9.07
	Tamas	-2.92*	.81	-4.84	-.99
Tamas	Sattva	7.62*	1.81	3.31	11.93
	Rajas	2.92*	.81	.99	4.84

Note: *The mean difference is significant at the .05 level.

Post hoc comparisons using the Tukey HSD test indicated that the mean score on perceived stress for subjects with the sattva guna (M = 12.62, SD = 3.54) was significantly different than from the rajas guna (M = 17.33, SD = 4.65) and tamas guna (M= 20.24, SD= 5.33), indicating that people with sattva guna reported lesser levels of stress, while the highest levels of stress was reported by the subjects with the dominance of tamas guna. (Table 3)

Table 4 Descriptive statistics of the effect of gunas and gender on mindful eating

	Females			Males			Total		
	Mean	SD	n	Mean	SD	n	Mean	SD	n
Sattva	3.10	.30	5	2.91	.02	3	3.03	.24	8
Rajas	2.86	.30	41	2.73	.30	23	2.81	.30	64
Tamas	2.70	.24	33	2.63	.25	53	2.65	.24	86
Total	2.80	.30	79	2.67	.26	79	2.74	.28	158

Prior to the conduction of ANOVA, the assumption related to it was tested and the data was found to be normally distributed (Shapiro-Wilk test at $p > 0.05$), and the data also met the assumption of the normality of residuals (Shapiro-Wilk test at $p > 0.05$). Levene's test showed that the variance of the group was equal [F (5, 152) = 1.55, $p = 0.17$]. There was one outlier in the data, and we analyzed the data with and without the outlier, and the results obtained were the same in both cases. Therefore, the outlier did not have a great influence in the distribution of the variable and hence was not removed from the overall data set.

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Table 5 Effect of Gunas and Gender on Mindful Eating: ANOVA

Source	Type III Sum of Squares	df	Mean of Squares	F
Gunas	1.19	2	.59	8.21**
Gender	.21	1	.21	3.01
Gunas*Gender	0.63	2	.31	.43
Error	11.03	152	.07	
Corrected Total	13.04	157		

Note: *significant at the 0.05 level (2-tailed).

**significant at the 0.01 level (2-tailed).

The main effect of gunas yielded an effect size of .098 indicating that 9.8% of the variance in the mindful eating was explained by the gunas [$F(2, 152) = 8.21, p < .001$]. This suggests that there is a significant effect of gunas on mindful eating practices. The main effect of the gender turned out to be non-significant [$F(1, 152) = 3.01, p = .08$], indicating that there was no significant effect of gender on mindful eating behaviours. The interaction effect of gunas*gender was not significant [$F(1, 152) = 0.43, p = .65$], indicating that there was no combined effect for gunas and gender on the mindful eating practices among young adults. (Table 5)

Table 6 Tukey HSD Comparison for the mindful eating scores in the three guna

		Mean Diff.	Std. Error.	95% confidence interval	
				Lower Bound	Upper Bound
Sattva	Rajas	.21	.10	-.02	.45
	Tamas	.37*	.09	.13	.60
Rajas	Sattva	-.21	.10	-.45	.02
	Tamas	.15*	.04	.05	.26
Tamas	Sattva	-.37*	.09	-.60	-.13
	Rajas	-.15*	.04	-.26	-.05

Note: *The mean difference is significant at the .05 level.

Post hoc comparisons using the Tukey HSD test indicated that the mean score on mindful eating questionnaire for subjects with the sattva guna ($M = 3.10, SD = .30$) was significantly different than from the tamas guna ($M = 2.70, SD = .24$), and scores on rajas guna ($M = 2.86, SD = .30$) were significantly different than the scores on tamas guna ($M = 2.70, SD = .24$). However, no significant differences were found between the mean score of subjects in sattva guna ($M = 3.10, SD = .30$), and rajas guna ($M = 2.86, SD = .30$) in terms of mindful eating behaviours. (Table 6)

DISCUSSION

The findings of the present study revealed a significant effect of gunas on perceived stress. The results show that overall subjects with sattvic traits experience less perceived stress as compared to other gunas. These findings are in line with the previously done research done by Soubhari and Kumar (2015) on understanding the impact of gunas on the levels of stress, which revealed that subjects under the age of 30 years were low in sattvic guna and high in rajasic and tamasic gunas. This study further suggests that because of the high manifestations of rajasic traits, subjects exhibited behaviours as that of being active aggressive, while subjects with tamasic traits exhibited lazy and procrastination behaviours. Also, well-being which is an indicator of health, happiness, prosperity, and also one's ability to manage stress, has been positively correlated with sattva and negatively correlated with rajas and tamas (Khanna et al., 2013).

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The results of the present study have also yielded a significant effect of gunas on mindful eating practices. The results show that subjects with a dominance of sattvic traits and rajasic traits engage more in mindful eating practices than subjects with tamasic guna. Mindful eating can be characterized by awareness, lack of emotional and external eating, and negligible disinhibition and distraction while eating (Framson et al., 2009). Considering these characteristics, the results are consistent with previous literature which has linked the sattvic trait to qualities like self-control, regulation, inhibition, and not giving in to temptations (Chidbhananda, 1992; Korada, 2010; Srivasta, 2012;), the qualities which are also associated with mindfulness (Jordan et al, 2014; Wilson & O'Connor, 2017). Additionally, Sri Krishna in *Bhagavad Gita* explains the type of food to be consumed by those who seek good health, which is sattvic food, consumed by individuals with sattva guna (Chidbhananda, 1992). It gives importance to moderation in intake and contentment. Also, individuals with a dominance of the rajasic guna tend to be ambitious and goal-oriented and thus indulge in foods that “stimulates their nervous system and speeds up their metabolism and activates it” (Ballentine, 1978, p. 548). Singh (1971) pointed out that rajasic people often have a developed awareness, sharp perception, and clear cognitions, and this could be the reason why such individuals engage in mindful eating practices. Also, both sattvic and rajasic individuals tend to go beyond the fulfillment of their basic needs to reach their prime goals. For the sattvic individuals the prime goal is the attainment of self-actualization, and for a rajasic individual, the prime goal is the fulfillment of the esteem needs. On the other hand, the tamasic individuals rely only on fulfilling their basic needs (Daftuar & Anjuli, 1997). Moreover, most of the young adults in our sample turned out to be high in the tamasic guna, and only a few had a dominance of sattvic guna. The reason for as to why only a few subjects were found to be sattvic could be related to the modern-day zeitgeist where the young adults prefer to indulge in instant gratifications to appease their senses like fast foods, processed foods, and expensive materialistic things (traits of tamasic gunas), and less inclination towards spiritual and religious practices.

CONCLUSION

The present study revealed that the gunas differed in relation to perceived stress and mindful eating practices among young adults. The results also clearly indicate the dominance of tamasic and rajasic gunas as compared to sattvic gunas in young adults. The findings can help in designing interventions that favor the development of sattvic traits in individuals for their holistic wellbeing. Although the sample size was small and mostly consisted of individuals from an urban background, to our knowledge the present study is the first study that provides an insight into the effects of gunas and gender on variables of stress and mindful eating.

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Acknowledgement

We would like to thank the faculty of the Department of Psychology at Keshav Mahavidyalaya College, University of Delhi, for their support and all the participants who took time off their busy schedule to participate in our study.

Conflict of Interest

The author declared no conflict of interest.

How to cite this article: Mendiratta A., Goel K. & Sondhi S. (2020). Effect of gunas on stress and mindful eating. *International Journal of Indian Psychology*, 8(4), 1345-1353. DIP:18.01.147/20200804, DOI:10.25215/0804.147