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Gender wise comparison of mindfulness amongst moderately active population during covid-19 lockdown

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Abstract
The main objective of the present survey study was to compare the level of mindfulness amongst moderately active females and males from urban cities in the age group of 15 to 58 years from different strata across India, during the lockdown period of COVID-19. 301 individuals, comprising females and males were administered Cognitive and Affective Mindfulness Scale (CAMS-Revised) but only a sample of 205 moderately active individuals were chosen for the purpose of this study. This scale was first developed in 2005 by Kumar, Feldman, and Hayes and subsequently reviewed and revised in 2007 by Feldman, Hayes, Kumar, Greeson, and Laurenceau into the Cognitive and Affective Scale of Mindfulness-Revised (CAMS-R). Descriptive statistics like mean, standard deviation, and non-parametric Mann-Whitney test were used with the help of SPSS 25.0 statistical package. The present findings revealed that there was no significant difference between females and males on mindfulness ($p > .05$). The Effect size was found to be low.

Keywords: Mindfulness, physical activity, females, males, COVID-19

Introduction
Several studies on meditation and yoga have shown the beneficial effects of increased knowledge on quality of life, vitality, self-esteem, empathy, confidence, honesty, or positive influence since the launch of the first scientific research conducted on this topic (Kabat-Zinn, 1982) [8]. Besides that, the contribution of mindfulness has been well documented in the alleviation of emotional disturbances, depression, neuroticism, rumination, anxiety (Keng, Smoski, & Robins, 2011; Rasmussen & Pidgeon, 2011; Thompson & Waltz, 2007) [9, 12]. Upon an in-depth study of the reviews/available literature on the subject, it was found that, little attention has been given to the question of gender differences in mindfulness on the Indian population. It is important to understand that mindfulness is different from concentration or attention, but that they supplement and complement each other as progress from one stage to the next is made. This has been observed in various randomized and controlled trial studies on female and male subjects. Gender variations in mindfulness are not observed in most current research (Brown & Ryan, 2003; Catak, 2012) [2, 4]. However, there is some research on gender differences in emotional strength that suggests that women typically have more positive and negative emotions (e.g. Diener, Sandvik, & Larsen, 1985) [5]. In India, due to Government of India's efforts since 2015, yoga has received impetus with the increased focus on doing mindful asana and pranayama and meditation, but mindfulness in particular, has not been of much focus in scientific study. But, mindfulness is applied in psychotherapy practice as a technique and in conjunction with yoga protocol or a typical yoga session. The connection between COVID-19 and mindfulness seemed like an appropriate topic for research at this point of time, because this new epidemic has no medication as yet. This is a pandemic which has caused a lot of individuals to lose their jobs, due to manufacturing, entertainment and other industries being shut down during the period of lockdown; mass migration of workers from different states in which they were employed to their home states; increased socio-economic status differences; education being shifted totally online; people confined to their homes 24x7, which caused the general population of India to be either burdened by concern for the future or often tending to live in the past painful events. This might mean that a significant number of people are usually unaware of the present moment, which is at the centre of consciousness.

Knowledge of the present, offers insight into the emotional state of people, unmet needs, and therefore a person's awareness of self-responsibility and beneficial future decisions to enhance the quality of life. Gradually, the news of vaccines being developed and tested, has provided hope to populations trying to cope with the pandemic by wearing masks, sanitizing themselves after returning home and also when outside after each and every contact with other individuals. Social distancing has also helped in containing the spread of the pandemic, though it keeps returning if total safety precautions are not observed. In Delhi alone, the number of cases increased to more than 8000 daily at one point of time due to the 'festival season' in October-November'20. A number of youngsters are also being infected now, even to the point of being admitted in the Intensive Care unit. It is the death of near and dear ones and the fact that none could be with them in their last hours that has created a silent panic in the minds of the people; it is assumed here that this might have affected or may not have affected their state of mindfulness. At the time that this paper is being written, Delhi has reported a total of 1063 new Covid -19 cases with 1120 recoveries and 37 deaths. The purpose of this study was to explore gender differences in mindfulness among Indian population due to the limited research conducted in this field. As a particular form of attention that is focused on the present moment in a non-judgmental manner, I was interested in studying mindfulness in such a scenario. Since, past research has shown that women are more likely to be or are benefitted by mindfulness, my prediction is that females might have a higher level of mindfulness as compared to males (Bryant, 2003; Tamres, Helgeson, & Janicki, 2002) [3, 11], but, in reality, the differences between the two genders may or may not exist. It was with reference to this context, that it was considered to be important to study the mindfulness of moderately active female and male populations, in order to understand the state of their minds in a situation which had seemed hopeless at first.

Procedure

This survey was conducted in India, during COVID-19 lockdown from 23rd March 2020. 301 people responded, but for the purpose of this study only two hundred five (205) who had no experience in yoga, tai-chi or meditation but were moderately physically active (female = 131, male = 74,) in the age group of 15 to 58 years, and who belonged to wide strata from all over India, were considered as subjects. Due to COVID-19 lockdown in 2020, the data was collected by sending the tool i.e. Cognitive and Affective Mindfulness Scale (CAMS-Revised) online through a Google form. The scale was first developed in 2005 by Kumar, Feldman, and Hayes. It was subsequently reviewed and revised in 2007 by Feldman, Hayes, Kumar, Greeson, and Laurenceau into the Cognitive and Affective Scale of Mindfulness-Revised (CAMS-R) where higher scores reflect higher levels of dispositional mindfulness. The data thus collected was statistically treated by using Statistical Package for the Social Science (SPSS) version 25.0, thereby computing Mean, S.D., and Mann-Whitney U test to explore the differences between females and males on the parameters of mindfulness.

Results and Discussion

Table 1: Reliability Statistics showing Cronbach's Alpha

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.611	.610	12

Table-1 shows that the internal consistency of the subjects data having 12 questions on mindfulness scale was fairly reasonable if not high (.611).

Table 2: Case Processing Summary showing total number of subjects and missing values

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Total mindfulness score	205	100.0%	0	0.0%	205	100.0%

Table-2 shows that there were 205 subjects who volunteered to sign the informed consent form for participating in the study. There were no missing values (100% cases/subjects were included/studied).

Table 3: Descriptive of mindfulness score (Total)

Mean	N	Std. deviation	Minimum	Maximum
33.57	205	4.817	21	43

Table-3 shows that the mean mindfulness score of the sample (N=205) was 33.57±4.817 with minimum score of 21 and a maximum score of 43 on mindfulness.

Table 4: Descriptive of mindfulness score (gender wise)

Gender	Mean	N	Std. Deviation	Minimum	Maximum
Male	33.08	74	5.147	22	43
Female	33.84	131	4.619	21	42
Total	33.57	205	4.817	21	43

Table-4 shows that the mean mindfulness score of the males (N_1=74) was 33.08± 5.147 with minimum score of 22 and a maximum score of 43 on mindfulness. Mean mindfulness score of females (N_2=131) was 33.84 ± 4.619 with minimum score of 21 and a maximum score of 43 on mindfulness.

Table 5: Tests of Normality

	Gender	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Total mindfulness score	Male	.091	74	.200*	.975	74	.153
	Female	.118	131	.000	.967	131	.003

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Table-5 shows Kolmogorov-Smirnov and Shapiro-Wilk tests of normality. As per the Shapiro-Wilk test which analyzed the normality of "total mindfulness score" on the data of "male" and "female" in the independent variable "Gender". As the Sig. value under the Shapiro-Wilk column is greater than 0.05 for males we can conclude that "total mindfulness score" for this particular subset of individuals is normally distributed (p >.05) but for females it is not normally distributed (p <.05).

The same data from the same individuals have also been analysed to produce a Normal Q-Q Plot as below. From fig-1, we can conclude that the data for males appears to be normally distributed as it follows the diagonal line closely and does not appear to have a non-linear pattern. But the same is not true for the females as shown in figure-2 below as it does not follow the diagonal line closely and appears to have a non-linear pattern towards top end of the line.

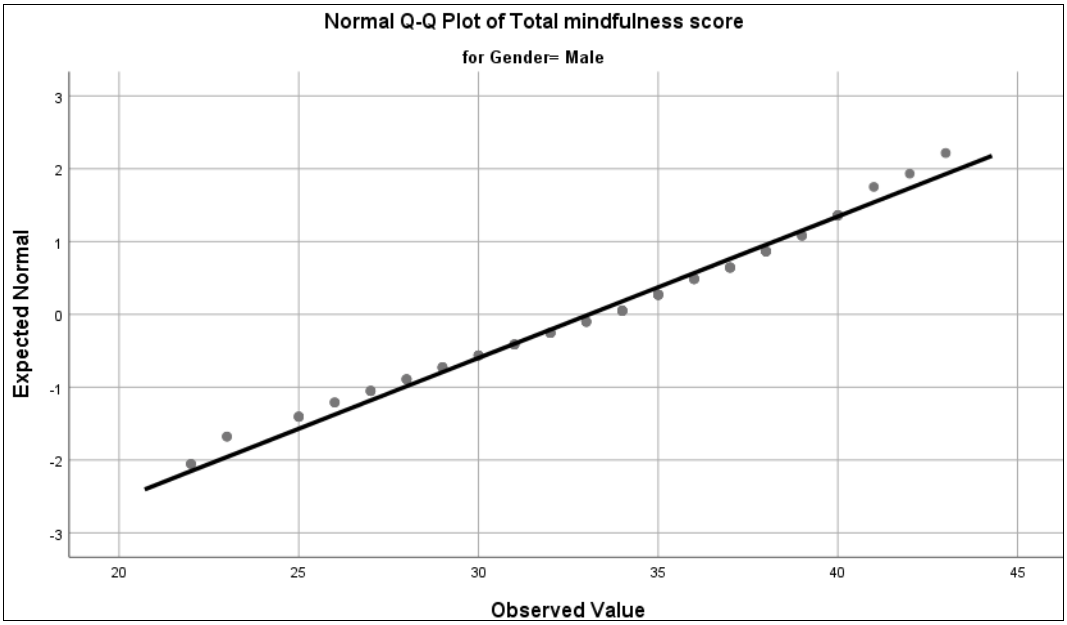

Fig 1: Normal Q-Q Plot for males

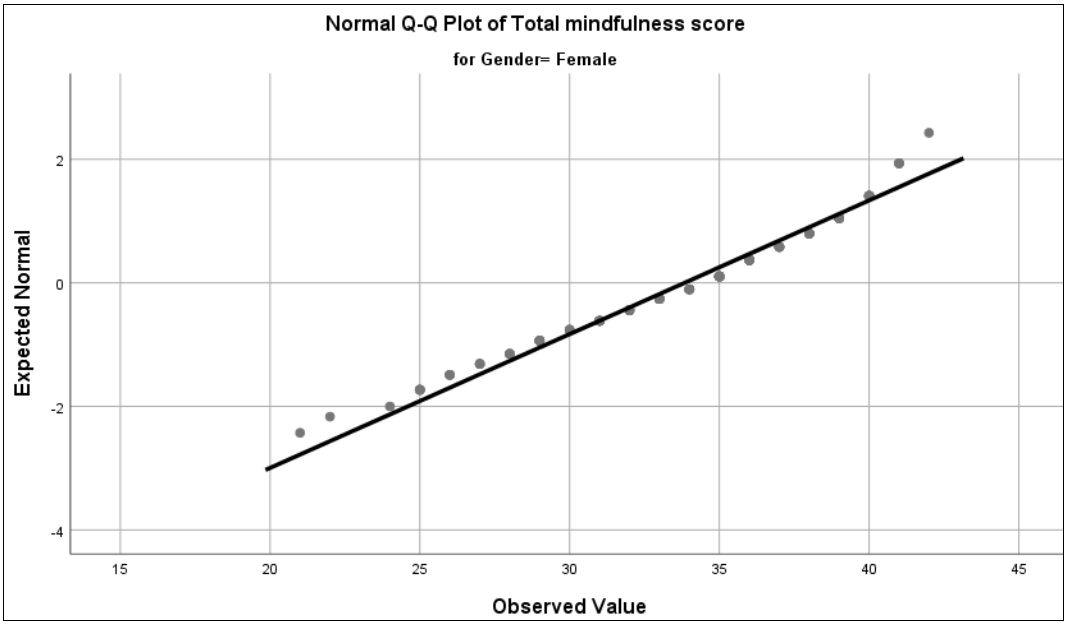

Fig 2: Normal Q-Q plot for females

Upon ascertaining that the data is not normal for one group i.e. males I chose to apply the non-parametric tests for further interpretation. Hence, Mann-Whitney test, which is the non-parametric equivalent of 2 samples independent test was used, as shown below in table-5

Table 6a: Mann-Whitney Test

Ranks				
	Gender	**N**	**Mean Rank**	**Sum of Ranks**
Total mindfulness score	Male	74	97.45	7211.50
	Female	131	106.13	13903.50
	Total	205		

Table 6b: Test Statistics

	Total mindfulness score
Mann-Whitney U	4436.500
Wilcoxon W	7211.500
Z	-1.009
Asymp. Sig. (2-tailed)	.313
a. Grouping Variable: Gender	

As the data was not normally distributed, the most appropriate statistical test was Mann-Whitney U as shown in table 6.a. and 6.b. Descriptive statistics as shown in table-6.a. Showed that females (mean rank = 106.13) scored higher on mindfulness than their male counter parts (mean rank = 97.45). Mann-Whitney U-value was found to be statistically non-significant U = 4436.500 (Z = -1.009), p > 0.05 as shown in table- 6.b. Upon seeing the effect size, it can be said that the difference between females and males was small (r = -.07), using Cohen's effect size estimates to interpret the meaning of the r score, r= -.07 (small effect). In other words, we can say that 7% of the variability in the mean ranks on mindfulness is accounted for (or explained) by the independent variable which is gender, and that has been found to be low in the present study.

The results of the present study are in conformity with the mindfulness study involving randomized controlled trials. The study did not find significant gender differences on outcome results between interventions (Bowen *et al*. 2009; Witkiewitz and Bowen 2010) [10, 13]. The quasi-experimental study by Simpson *et al*. (2007) [10] compared Vipassanā meditation (VM) to an intervention that included chemical dependency treatment and mental health services, found that women were more likely to self-select for VM, but that VM was equally effective for both genders.

In the empirical investigation that was conducted to compare the mindfulness of 104 male and female intervarsity taekwondo players of India (Dr. Abdul Rahaman 2015) [6] in the age group of 17 to 27 years, insignificant difference was found on mindfulness between male and female players of India. Mindfulness meditation is an internally focused practice to become more aware of one's feelings, emotions and thoughts without being judgemental that might be more beneficial for most men and women. Lots of research has shown that in response to stress, females tend to ruminate and fixate and males tend to distract. This appears in mental illness, with women having higher rates of anxiety and depression, while men have higher rates of behavioural disorders and drug use.

Conclusion

The fact that Moderately active men and women did not show significant differences on mindfulness in this study shows that, despite the severity of COVID-19, the people were highly aware of and focussing on the development of vaccines which will bring relief to the people at large. Also the fact that, dissemination of information by Governments across the world to use masks, maintain social distancing along with sanitising hands and exposed parts of the body, is effective against the pandemic until a cure is discovered, has worked to reduce the arousal of the affective component of the mind. But the danger still prevails and instead of concentrating too much on whether mindfulness is better in females or males, it might be better to provide interventions to both women and men to practice meditation daily to keep themselves stable, come what may. The value of tailoring effective approaches for different categories also might lead to better outcomes that can be further translated into improved cognitive and affective management abilities amongst both the genders. For instance, a more active mindful practise like Tai Chi or practice of mindful yogic postures and pranayama might be more effective than meditation, for someone who identifies with more active methods of managing the affective component of thoughts. The main takeaway from this study is that if both genders keep themselves occupied with physical activity/work and stay positive along with being given effective governmental and no-governmental support, in such pandemics, then it will definitely lead to better management of situations. The importance of interventions from Government and Non-government organisations can be gauged from this study as both genders are reasonably stable in their mindfulness. Based on the results of this study, both Government and NGO's will be enabled to be better prepared for the next pandemic and provide the best care and information to people of all genders, identities, and backgrounds.

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