# Indian Journal of Nutrition



Volume 8, Issue 1 - 2021 © Bhatia IN, et al. 2021 www.opensciencepublications.com

## India Lockdown: Relationship between Disordered Eating and Mental Health Concerns

### **Research Article**

Bhatia IN<sup>1\*</sup> and Kishnani R<sup>2</sup>

<sup>1</sup>The Nutrition Project, India

<sup>2</sup>Mind Heal(th), India

\***Corresponding author:** Bhatia IN, The Nutrition Project, 7, Embassy Center, Ground Floor, Nariman Point, Mumbai - 400 021, India Tel:+918657991198 Email: ishitaa.bhatia@gmail.com

Article Information: Submission: 18/02/2021; Accepted: 10/03/2021; Published: 13/03/2021

**Copyright:** © 2021 Bhatia IN, et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

#### Abstract

The purpose of the study was to investigate whether there was a significant positive correlation between disordered eating behaviours and mental health concerns (depression, anxiety and stress).

A master survey was electronically circulated to young males and females (age 15-30 years) residing in the city of Mumbai, India during the national lockdown in the month of May 2020. The survey included the DASS-21 questionnaire (depression, anxiety and stress score) and the EDE-Q (Eating Disorder Examination Questionnaire). Subscale and global scores were processed. One-tailed Pearson's correlation was conducted to investigate the relation between EDE-Q global score and DASS-21 subscale scores. One hundred and eighteen (n=118) respondents took the survey. The mean scores for the depression, anxiety and stress subscales were 15.25 (moderate), 9.94 (moderate) and 16.28 (mild) respectively. Out of the four EDE-Q subscales, the mean score of shape concern appeared to be the highest ( $2.39 \pm 1.6$ ), followed by weight concern ( $1.96 \pm 1.59$ ), restriction ( $1.31 \pm 1.37$ ) and eating concerns ( $0.92 \pm 1.19$ ). The mean global EDE-Q score was  $1.65 \pm 1.22$ . A positive correlation was found between EDE-Q global scores and DASS-21 subscale scores i.e. depression (r=0.49; p<0.01) anxiety (r=0.31; p<0.01) and stress (r=0.41; p<0.01). The present study gives insight into mental health conditions and eating behaviours present within an Indian sample during the national lockdown. It opens avenues for discussion for the need of multidisciplinary healthcare teams to provide holistic eating disorder care.

Keywords: Survey; Depression; Anxiety; Stress; Disordered eating; Lockdown; Correlation; Eating behaviour; Mental health; Pandemic

#### Introduction

The widespread COVID-19 outbreak in December of 2019 in China identified that the Chinese public was at a high risk of displaying a myriad of psychological distress and mental health issues. The overall prevalence of mental health conditions - Generalized Anxiety Disorder (GAD) and depressive symptoms were significantly high and the Chinese population indicated higher risk for poorer sleep quality [1]. Current literature suggests that self-reported stress, depression and anxiety symptoms are common psychological responses to the pandemic [2]. In addition, the restricted outdoor mobility and disruptions in daily routines have indicated changes in eating behaviours in individuals as observed by a preliminary health survey [3]. The changes include snacking frequency, eating out of control frequency and hunger/satiety perception, sweet intake frequency etc. [3]. Eating disorders are psychological disorders characterised by abnormal or disturbed eating behaviours with or without compensatory behaviours as diagnosed by DSM-5 [4]. Behaviours include binge-eating, purging, laxative usage, food restrictions and excessive exercise. Disordered eating is a condition described by similar characteristics of a lower level of severity and frequency as that of an eating disorder [4]. Indicators of low self-esteem such as body shape, weight, perception and preoccupation/anxiety towards certain food groups are also found to be related to disturbed eating patterns. It is essential to highlight that populations with depressive symptoms also often experience increased body image dissatisfaction, binge eating and disordered eating behaviors [5]. Conversely, low self esteem, poor body image issues and lack of social support systems are also indicative as potential risk factors for depression [6]. The bidirectional influential nature of these constructs along

#### INDIAN JOURNAL OF NUTRITION

with the observed high levels of comorbidity between depressive and disordered eating symptomatology warrants a further investigation to explore the relationship between the two.

Furthermore, it is essential to highlight that there is a paucity of research in India to determine the prevalence of eating disorders and disordered eating behaviors due to under-reporting concerns [7]. Although, there have been small and isolated studies in the recent past that indicate the prevalence of disordered eating in India between 16.9% to 29.2% (Table 1).

Majority of the studies conducted in India have predominantly employed the Eating Attitudes Test- 26 item (EAT- 26) measure as the chosen screening tool [7]. However, the EAT-26 aims to assess eating attitudes by calculating scores on only three subscales: 1) Dieting, 2) Bulimia and Food preoccupation and 3) Oral Control. Alternatively, the Eating Disorder Examination Questionnaire (EDE-Q) is considered to be the clinical gold standard screening tool to evaluate the presence of key behavioural and cognitive features present in disordered eating, as well as eating disorders [4]. The EDE-Q has shown to have good internal consistency, high validity and sensitivity [8]. The Depression Anxiety Stress Score (DASS-21) questionnaire is a well-established instrument for measuring depression, anxiety, and stress with good reliability and validity reported across cultures [9].

The dearth of Indian research on disordered eating behaviors coupled with the above stated bidirectional influence calls for further empirical inquiry. This lends an opportunity to conduct a study examining the relationship between mental health concerns and disordered eating in the context of COVID-19. The research proposes that a significant positive Pearson's correlation will be observed between mental health concerns (depression, stress and anxiety scores) and disordered eating scores during the country-wide lockdown.

#### Method

A 60 item master survey was developed by compiling the 33 item EDE-Q and the 21 item DASS-21 questionnaires, in addition to six demographic questions. Previously validated questionnaires were chosen as they have been extensively tested in the past and thus correctly calibrated to their target [10-12]. A voluntary response sampling method was employed. A web-based survey approach was selected in light of the national lockdown. Compared to manual entry, web-based surveys are time and cost effective. Further, they improve data collection quality and response rate compared with alternative survey forms [13]. The web-based nature facilitated the survey to reach various regions of the city of Mumbai, India. The survey platform employed was Google Forms.

#### Table 1: Isolated original research studies about disordered eating in India [7].

Author	Sample Size	Measures	Findings of Disordered Eating
Ramaiah, 2015 Bellur	29	EAT-26	16.90%
Upadhyah <i>et al</i> ., 2014 Meerut	32 (13-17 years)	EAT-26	26.67%
Shashank <i>et al</i> ., 2016 Mandya	134	EAT-26	29.20%

#### Participants

The 15 minute master survey was electronically distributed to young males and females (age 15-30) residing in the city of Mumbai, India during the national lockdown in the month of May 2020.

#### Survey

The survey was divided into two main parts, DASS-21 questions and EDE-Q questions. The DASS- depression subscale focuses on reports of low mood, motivation, and self-esteem. The DASS-anxiety on physiological arousal, perceived panic, and fear. Lastly, the DASSstress subscale on tension and irritability [14].

The EDE-Q is a 33 item questionnaire developed by Fairburn and colleagues addressing cognitive features of eating disorders over the past 28 days [15]. It includes subscales like Eating Concerns, Shape concerns, Weight Concerns and Dietary Restraint. The mean of the subscales was employed to calculate the overall EDE-Q global score [15]. This global score was then correlated with the DASS-21 subscales.

#### Statistics

The responses were maintained on Microsoft Office Excel. Subscale scores and global scores of the respective validated questionnaires were calculated in accordance to the questionnaire guides. One-tailed Pearson's correlation was conducted using the Statistical Package for the Social Science (SPSS) Statistics software [16,17].

#### Results

One hundred and eighteen (n=118) complete responses of youth aged 15-30 years from Mumbai, India- were received electronically. Out of the total number of responses 53 (44.9%) were male and 65 (55.1%) were female. More than half of the participants (76; 64.4%) were between 21-25 years of age. Most of the participants were unmarried (114; 96.6%). The mean weight, height and BMI of the participants were 63.57 kgs, 116.3 cm, 22.78 kg/m<sup>2</sup> respectively (Table 2).

#### **DASS-21** scores

As per the DASS-21 questionnaire, the mean scores during the national lockdown for the depression and anxiety scales were 15.25 and 9.94 respectively - which is observed as moderate levels of severity. The mean score for the stress scale was 16.28; indicating mild levels of stress (Table 3).

Characteristics	n	%
Male	53	44.90%
Female	65	55.10%
Employed	62	52.50%
Unemployed	56	47.50%
Married	4	3.40%
Unmarried	114	96.60%
	Mean	SD
Weight (Kg)	63.57	±17.14
Height (cm)	116.3	±12.40
BMI (kg/m²)	22.78	±4.59

#### **EDE-Q** scores

The mean scores of the EDEQ subscales i.e., dietary restraint, eating concerns, shape concerns and weight concern were computed. Out of the four subscales, the mean score of shape concern appeared to be the highest (2.39  $\pm$  1.61), followed by weight concern (1.94  $\pm$  1.59), dietary restraint (1.31  $\pm$  1.37) and eating concerns (0.92  $\pm$  1.19). The mean global EDE-Q score was 1.65  $\pm$  1.22 (Table 4).

#### Correlation

DASS-21 depression, anxiety and stress subscales, individually showed a significant positive correlation with the EDE-Q global disordered eating scores i.e. r=0.49, p<0.01; r=0.31, p<0.01; r=0.42, p<0.01 respectively (Table 5).

#### Discussion

This study is one of the preliminary studies that compares disordered eating behaviours with depression, anxiety and stress in

 Table 3: Depression, Anxiety, Stress Scale (DASS-21 questionnaire) subscale scores.

	Mean Score (n=118)	Cut off scores [18]	Interpretation	
	15.25	Normal: 0-9		
		Mild: 10-13		
Depression		Moderate: 14-20	Moderate	
Subscale		Severe: 21- 27	moderate	
		Extremely severe: 28+		
Anxiety Subscale	9.94	Normal: 0-7		
		Mild: 8-9		
		Moderate: 10-14	Moderate	
		Severe: 15-19		
		Extremely severe: 20+		
Stress Subscale	16.28	Normal: 0-14	25 3 re:	
		Mild: 15-18		
		Moderate: 19-25		
		Severe: 26-33		
		Extremely severe: 34+		

 Table 4: Eating Disorder Examination Questionnaire (EDE-Q) subscaleand global scores.

	Mean score	Standard Deviation
Dietary Restraint	1.31	±1.37
Eating concern	0.92	±1.19
Shape concern	2.39	±1.61
Weight concern	1.94	±1.59
Global EDE-Q score (4 subscales)	1.65	±1.22

 Table 5: Pearson Correlations (r value) between subscales of the DASS-21 and Global EDE-Q score.

	Depression	Anxiety	Stress	Global EDE-Q
Depression	1			
Anxiety	0.60**	1		
Stress	0.78**	0.66**	1	
Global EDE-Q	0.49**	0.31**	0.42**	1
Note: **p<0.01; n= 118				

a South Asian sample population. Validated questionnaires have been used to assess the said variables. The present study showed that amongst the DASS-21 subscales - the scores for depression and anxiety subscales were of moderate severity at 15.25 and 9.94 respectively, while the mean score for the stress subscale was of mild severity at 16.28. For the EDEQ subscales, the mean score of shape concern appeared to be the highest  $(2.39 \pm 1.6)$ , followed by weight concern  $(1.94 \pm 1.59)$ , dietary restraint  $(1.31 \pm 1.37)$  and eating concerns  $(0.92 \pm 1.19)$ . The mean global EDE-Q score was  $1.65 \pm 1.22$ . The present study also showed that there are significant positive correlations between disordered eating with depression (r=0.49; p<0.01), anxiety (r=0.31; p<0.01) and stress (r=0.42; p<0.01) respectively.

In the past, studies have explored correlations between disordered eating with mental health concerns [19-21]. Most recently a correlation between stress and disordered eating in first year college women was found [22]. Gan and colleagues have also found positive correlations between stress, anxiety, depression and disordered eating [21]. The current study was set up to re-examine these variables in a South Asian sample population in the backdrop of the COVID-19 lockdown. The results show to be in line with the outcome of previous studies.

Furthermore, examining the observed EDEQ individual subscale scores could facilitate researchers to explore potential reasons for weight and shape concerns to be relatively higher than eating concerns during the national lockdown. This period, marked with isolation and social distancing, seemed to have left individuals and communities excessively using mass media as a coping tool. Social media platforms have seen a 61% increase in consumption as people employ the platforms to stay connected with family, friends, and colleagues [23]. The excessive usage of platforms such as instagram does serve as a potential explanatory force to better comprehend why shape concern is relatively high in the light of lockdown. A recent qualitative study exploring instagram use and body image suggests how participants were inclined to adhering to a variety of beauty standards by responding to beauty ideals such as comparing self with others, and displaying of self. Participants reported significant appearance dissatisfaction when trying to achieve these ideals and frequently compared their photos to the number of likes with others using the platform [24]. One could also draw light on the nature of the content displayed on these platforms during the lockdown. A British study examining the impact on COVID-19 on those with eating disorders states that there was an increase in posts about physical activity (eg. sharing daily exercise routines) and "fear of gaining weight" during the lockdown [25]. There is also some evidence highlighting higher anxiety being significantly associated with higher weight change perception during COVID-19 [26]. Thus, the influx of such content on social media may be a potential contributor to a relatively higher shape and weight concern in the present study participants.

On the other hand, interestingly-participants scored the lowest on the eating concern subscale. The speculated reasons for this may be twofold. Firstly, the lack of availability of a variety of foods, with access to only staples may have made individuals more open to

#### INDIAN JOURNAL OF NUTRITION

consuming foods that are available even if it is uncharacteristic of their regular food choices. Secondly, social influences of eating may have reduced with the confinement - leading to higher degrees of food freedom. The effect of social comparison on eating behaviours has been discussed in the past. Polivy outlines how people tend to alter not just the amount of food eaten (e.g. women may tend to eat lesser when they want to make a positive impression on someone) but also the kind of food eaten (eg. men avoid eating quiche and other "lady foods," and choose more hearty meals) in a social setting [27].

It could also be inferred that the uncertainty and lack of control individuals experience during a lockdown causes significant anxiety that they wish to diminish by regaining control in other life spheres. Taking control of their diets, food intake, body shape, size and form could potentially be a sphere that individuals employ to channelize their distress and reclaim their control and power. There is adequate evidence through time, indicating the impact of emotions on eating behaviours across cultures [28-30]. Similarly, in such trying times, one can speculate how food can be used as a coping mechanism, and provide comfort - thus reiterating the influence of mental health concerns on eating behaviours.

There are certain limitations in the present study. The participating sample size (young males and females in Mumbai, India) limits generalizability to other groups and contexts. Moreover, web-surveys can make it difficult to assess the degree of functionality of the sample population. It is essential to note that the data collection measures employed are self-report and are subject to self-report biases. The limited cultural sensitivity of the screening tools employed is crucial to highlight, since they have been used on an Indian sample. Lastly, it is important to highlight that correlation research does not imply causation and hence there could be several other mediating variables that could explain the relations observed which cannot be overlooked.

Looking forward, there are significant, widespread and impactful implications for the findings of the study. It creates awareness about the relation between depression, anxiety, stress and disordered eating. Moreover, it also opens avenues for further discussions for creating an interdisciplinary approach amongst mental health professionals and dietitians to be able to provide appropriate collaborative care, as well as early interventions to prevent clinical eating disorders. The study also contributes to disordered eating and mental health disorders literature within a South Asian cohort, especially during the unconventional COVID-19 era. Larger, temporal and causal studies are required to further investigate and confirm the relation between disordered eating behaviours with mental health concerns.

#### References

- Huang Y, Zhao N (2020) Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: a web-based crosssectional survey. Psychiatry Research 288: 112954.
- Rajkumar R (2020) COVID-19 and mental health: A review of the existing literature. Asian J Psychiatr 52: 102066.
- Ammar A, Brach M, Trabelsi K, Chtourou H, Boukhris O, et al. (2020) Effects of COVID-19 home confinement on eating behaviour and physical activity: results of the ECLB-COVID19 international online survey. Nutrients 12: 1583.

- Pirotta S, Barillaro M, Brennan L, Grassi A, Jeanes Y, et al. (2019) Disordered eating behaviours and eating disorders in women in australia with and without polycystic ovary syndrome: a cross-sectional study. J Clin Med 8: 1682.
- Measelle J, Stice E, Hogansen J (2006) Developmental trajectories of cooccurring depressive, eating, antisocial, and substance abuse problems in female adolescents. J Abnorm Psychol 115: 524-538.
- Santos M, Steven Richards C, Kathryn Bleckley M (2007) Comorbidity between depression and disordered eating in adolescents. Eat Behav 8: 440-449.
- Vaidyanathan S, Kuppili P, Menon V (2019) Eating Disorders: An Overview of Indian Research. Indian J Psychol Med 41: 311-317.
- Fairburn CG, Beglin SJ (1994) Assessment of eating disorders: interview or self-report questionnaire? The Int J Eat Disord 16: 363-370.
- Oei T, Sawang S, Goh Y, Mukhtar F (2013) Using the Depression Anxiety Stress Scale 21 (DASS-21) across cultures. Int J Psychol 48: 1018-1029.
- Mond J, Hay P, Rodgers B, Owen C, Beumont P. (2004) Validity of the Eating Disorder Examination Questionnaire (EDE-Q) in screening for eating disorders in community samples. Behav Res Ther 42: 551-567.
- Le M, Tran T, Holton S, Nguyen H, Wolfe R, et al. (2017) Reliability, convergent validity and factor structure of the DASS-21 in a sample of Vietnamese adolescents. PLoS One 12: e0180557.
- Jones TL, Baxter MAJ, Khanduja V (2013) A quick guide to survey research. Ann R Coll Surg Engl 95: 5-7.
- van Gelder M, Bretveld R, Roeleveld N (2010) Web-based questionnaires: the future in epidemiology? Am J Epidemiol 172: 1292-1298.
- Parkitny L, McAuley J (2010) The Depression Anxiety Stress Scale (DASS). J Physiother 56: 204.
- Fairburn CG, Cooper Z, O'Connor M (2008) The eating disorder examination. In: In fairburn C.G. cognitive behavior therapy and eating disorders. Guilford Press, New York pp. 317-360.
- Fairburn C, Cooper Z, O'Connor M. (2014) Eating Disorder Examination (Edition 17.0D; April, 2014).
- Lovibond SH, Lovibond PF (1995) Manual for the Depression Anxiety & Stress Scales. Psychology Foundation monograph. (2<sup>nd</sup> edn) pp. 42.
- Chin EG, Buchanan EM, Ebesutani C, Young J (2018) Depression, Anxiety, and Stress: How Should Clinicians Interpret the Total and Subscale Scores of the 21-Item Depression, Anxiety, and Stress Scales? Psychol Rep 122: 1550-1575.
- Ngan S, Chern B, Rajarathnam D, Balan J, Hong T, et al. (2017) The relationship between eating disorders and stress among medical undergraduate: a cross-sectional study. Open J Epidemiol 7: 85-95.
- Hay P, Williams SE (2013) Exploring relationships over time between psychological distress, perceived stress, life events and immature defense style on disordered eating pathology. BMC Psychol 1: 27.
- Gan WG, Mohd NMT, Zalilah MS, Abu HS (2011) Disordered eating behaviors, depression, anxiety and stress among Malaysian university students. College Student J 45: 296.
- 22. Anderson J (2019) The relation between disordered eating, stress, and anxiety in first-year college women. Honors Program Theses 390.
- Nabity-Grover T, Cheung C, Thatcher J (2020) Inside out and outside in: How the COVID-19 pandemic affects self-disclosure on social media. Int J Inf Manage 55: 102188.
- Baker N, Ferszt G, Breines JG (2019) Qualitative Study Exploring Female College Students' Instagram Use and Body Image. Cyberpsychol Behav Soc Netw 22: 277-282.
- Branley-Bell D, Talbot C. (2020) Exploring the impact of the COVID-19 pandemic and UK lockdown on individuals with experience of eating disorders. J Eat Disord 8: 44.

#### INDIAN JOURNAL OF NUTRITION

- 26. Haddad C, Zakhour M, Siddik G, Haddad R, Sacre H, et al. (2019) Coronavirus disease outbreak: does confinement have any impact on weight variation and weight change perception? Research Square.
- 27. Polivy J (2017) What's that you're eating? Social comparison and eating behavior. J Eating Disorders 5.
- 28. Talbot LS, Maguen S, Epel ES, Metzler TJ, Neylan TC (2013) Posttraumatic

Stress Disorder Is Associated With Emotional Eating. J Trauma Stress 26: 521-525.

- Nyklíček I, Vingerhoets A, Zeelenberg M (2011) (1<sup>st</sup> ed) Emotion Regulation and Well-Being. New York, NY: Springer 17: 331.
- Luomala H, Sirieix L, Tahir R (2019) Exploring Emotional-Eating Patterns in Different Cultures: Toward a Conceptual Framework Model. J Int Consumer Marketing 21: 231-245.

Citation: Bhatia IN, Kishnani R. India Lockdown: Relationship between Disordered Eating and Mental Health Concerns. Indian J Nutri. 2021;8(1): 224.