

The effect of Lockdown due to Covid-19 on Post-traumatic Stress and Depression among College Students of Kolkata, hotspot district of West Bengal, India

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Abstract: COVID-19 pandemic has caused havoc worldwide. Kolkata, one of the largest metro cities in India is also going through a challenging situation as the number of infected/positive cases is increasing day by day. With strict preventive measures & restrictions by the Indian Government in the form of nationwide lockdown, the residents are going through a range of psychological & emotional reactions. Present study aimed at finding out the relation between post-traumatic stress & depression among both male and female undergraduate college students of Kolkata during COVID-19 lockdown phase. Two random samples of 100 participants (50 males & 50 females) aged 18 to 20 years residing in Kolkata were selected. The Impact of Event Scale—Revised (IES-R) by Horowitz, Wilner, & Alvarez, (1979) and The Center for Epidemiologic Studies—Depression Scale (CES-D) by Radloff (1977) along with a general information schedule were administered on selected samples through online. Findings suggest that PTSD including its factors & depression, all the variables under study had found to be gender dependent for college students living in Kolkata; & their post-traumatic stress significantly contributed to depression as well during lockdown for Covid-19 pandemic.

Key words: Covid-19, pandemic, lockdown, post-traumatic stress, depression.

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I. INTRODUCTION

On 11 March 2020, the World Health Organization (WHO) declared COVID-19, a disease caused by coronavirus SARS-CoV-2, a pandemic. Closer home, a nationwide lockdown has been enforced in India to tackle the spread of the Coronavirus, and people find themselves enmeshed in varying degrees of quarantine - either self-isolation at home or mandated quarantine to prevent contagion. The Coronavirus induced social isolation and loneliness is further fraught with zero clarity on how long the lockdown situation will last or if it will indeed cease to exist in the near foreseeable future, which makes the matter more disconcerting. Although the infection is not extremely fatal, factors like rapid rate of spread of infection, airborne mode of transmission, lack of definitive treatment, non-availability of vaccines as well as the healthcare gap in society is causing a huge degree of fear, threatening the survival of humans worldwide. Though combating the pandemic through social isolation is what countries across the globe have been harping on, but persevering through the resultant chronic loneliness will be a difficult task for all specially for younger generations. Nervousness, fears of contamination, constant reassurance seeking behaviours, panic attacks, sleep disturbance, excessive worry and feelings of helplessness are some of the other possible ramifications of prolong lockdown. A recent review of research published in *The Lancet* found that quarantine is linked with post-traumatic stress disorder (PTSD) symptoms, confusion, and anger - the effects of which can be long-lasting. Those with pre-existing depression and anxiety are at a greater risk of it becoming worse during this time, whilst many new cases of depression and anxiety can also occur.

Widespread outbreaks of infectious disease, such as COVID-19, are associated with psychological distress and symptoms of mental illness (Bao et al., 2020). The coronavirus outbreak has led people to engage in social distancing as a critical way to help “flatten the curve,” or contain the spread of the illness to help keep infection rates as low as possible. The isolation imposed by lockdown frequently leaves people feeling that they have no control over the situation. They also feel detached from the rest of the world and unable to perform their usual duties. The American Psychological Association reports that social isolation carries a number of health risks (Cacioppo, 2011). Feeling isolated can lead to poor sleep, poor cardiovascular health, lower immunity, depressive symptoms, and impaired executive function. When executive function skills are impaired, one may find it more difficult to focus, manage emotions, remember information, and follow directions. Lockdown is often associated with negative psychological effects, some of which may endure for years. Extended lockdown with indefinite periods is associated with poorer mental health outcomes. Lockdown is often an unpleasant

experience for young adolescent boys and girls who are usually more socially active than others. Separation from loved ones, the loss of freedom, uncertainty over disease status, and boredom can, on occasion, create dramatic effects. Confined home-stay for prolonged lockdown will inevitably cause anxiety, depression and other stress reactions. Suicide has been reported (Chiappelli, 2004) substantial anger generated, and lawsuits brought (Gros, 2012) following the imposition of lockdown in previous outbreaks. Negative mental health effects due to social isolation may be particularly pronounced among adolescents and young adults, as these groups are already at risk for depression or suicidal ideation. In response to the current coronavirus crisis, most state and local governments are requiring closures of colleges and other educational institutions to prohibit large gatherings. Majority of adolescent and young adults living under COVID-19 lockdowns, social restrictions and school closures are dealing with feelings of anxiety, with many at risk of lasting psychological distress, including depression. This leaves youth who are already at risk, such as those living in challenging home environments or those who are lacking social support or facing poverty, especially vulnerable. The pandemic is occurring against the backdrop of increased prevalence of mental health issues in the UK in recent years in some groups (McManus, 2014; Ford, 2020). The general population survey done by Ipsos MORI, revealed widespread concerns about the effect of social isolation or social distancing on wellbeing; increased anxiety, depression, stress, and other negative feelings.

Posttraumatic stress disorder is defined by the revised fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (APA, 2000) as the development of a constellation of symptoms after experiencing or witnessing an extreme traumatic event. The emotional reaction to the event is characterized by horror, intense fear, or helplessness. The stress that results from traumatic events precipitates a spectrum of psycho-emotional and physiopathological outcomes. Post-traumatic stress disorder (PTSD) is a psychiatric disorder that results from the experience or witnessing of traumatic or life-threatening events. PTSD has profound psychobiological correlates, which can impair the person's daily life and be life threatening. Traumatic events that trigger PTSD are perfect examples of such onerous demands that lead to the conscious or unconscious perception on the part of the subject of not being able to cope (Chiappelli et al. 2004). The perception of stress is often associated with psychological manifestations of anxiety, irritability and anger, sad and depressed moods, tension and fatigue, and with certain bodily manifestations, including perspiration, blushing or blanching of the face, increased heart beat or decreased blood pressure, and intestinal cramps and discomfort. These signs mirror the spectrum of psychobiological symptoms in PTSD. The disorder or its symptoms may lead to difficulties in emotional functioning, such as irritability, sadness, depression, guilt, shame, or anger. Psychiatric comorbidities are more common than not (Shipherd et al. 2007), and depression in particular has been found to frequently co-occur with chronic pain and PTSD (Poundja et al. 2006). Similarly, the energy to manage daily tasks is likely depleted with under-regulated PTSD. To "regulate" the discomfort inherent in hyper-arousal and the distress inherent in re-experiencing phenomena, an individual may develop chronic avoidant behaviours that act to prolong the disorder rather than foster improvement (Foa et al. 2007). Social and interpersonal functioning likely are impacted in response to isolation prompted by avoidance and hyper-arousal symptoms.

Comorbidity between post-traumatic stress disorder (PTSD) and major depressive disorder is common, with approximately half of people with PTSD also having a diagnosis of major depressive disorder (MDD) across diverse epidemiological samples (Breslau et al. 1997; Kessler et al. 1995; Rytwinski et al. 2013 and Caramanica et al. 2014). Depression is a major cause of morbidity worldwide (WHO, 2012). A new study published in the journal medRxiv in April 2020 reports that the pandemic is also associated with increased anxiety and depression in UK adults experiencing isolation (White et al. 2020). Further, in situations where personal choices of activities are constrained, such as during periods of social isolation and lockdown, natural mood regulation is impaired which might result in depression. The current lockdown strategies used by different countries to control the COVID-19 pandemic is expected to cause even more depressions. Research shows that feelings of helplessness, loneliness and fear of being socially excluded, stigmatised or separated from loved ones are common in any epidemic, while prolonged stress, boredom and social isolation, as well as a lack of outdoor play, can lead to a higher number of mental health conditions in children, such as anxiety and even depression. Social media is particularly fertile ground for anxiety-inducing information and disinformation, which can exacerbate anxiety and cause depression among college students. Cancellations of colleges and examinations are likely to come with detrimental consequences on their education (Burgess and Sievertsen 2020), but this increased stress added to the social isolation of these college students from their friends and teachers, may also affect the socio-emotional skills of them. A likely outcome of this pandemic is that psychological issues in adolescents will get amplified if the home environment is stressful. This exacerbation of pre-existing psychological issues can be most prominent for those who are in low educated and less affluent households and who tend to have lower socio-emotional skills already (Attanasio et al. 2020). Though both boys and girls during adolescence, a stage when the probability of psychological disorders increases (Patalay and Fitzsimons 2018) encounter distresses but boys are more likely to experience behavioural issues than girls (Bertrand and Pan 2013). In addition, social isolation, even removed from the sudden enforced isolation

resulting from COVID-19 lockdowns, can lead to increased cases of depression, psychosis, delusions and suicidal behaviour (Wang, 2017).

Lockdown in Kolkata due to COVID-19:

The Government of West Bengal announced a complete lockdown in West Bengal on March 22 to impose a complete safety restriction due to COVID-19. On March 23, Prime Minister of India, Mr.NarendraModi announced a nationwide lockdown (India Times. 18 March 2020). The COVID-19 pandemic was first confirmed in Kolkata, capital of West Bengal on 17 March 2020 in Kolkata (The Economic Times, 29th April, 2020). The Health and Family Welfare department of Government of West Bengal has confirmed a total of 1259 COVID-19 positive cases, including 908 active cases, 61 deaths and 218 recoveries, as of 4 May 2020. The West Bengal state government has identified 7 hotspots on 7 April 2020. Afterward, The West State Government has released a list, saying four districts, including Kolkata, have been declared as red zones in the wake of the COVID-19 outbreak, and 348 areas as containment zones out of which Kolkata has 227 (EduKare Bulletin, 29th April, 2020).

Considering the above, the present investigation had the following aims and objectives on the basis of certain selected variables- post-traumatic stress & depression experienced due to Covid-19 lockdown:

1. To study the significant difference, if any, between male and female undergraduate college students residing in Kolkata on post-traumatic stress due to Covid-19 lockdown.
2. To study the differential effects, if any, in depression as experienced by male and female undergraduate college students of Kolkata during COVIT-19 lockdown phase.
3. To explore, if any, the correlation between post-traumatic stress and depression experienced during this turmoil phase for both sexes, separately.

Hypotheses:

- I. Male undergraduate college students living in Kolkata will significantly differ from their female counterparts in respect of their perceived post-traumatic stress (including three factors of post-traumatic stress, viz. intrusion, avoidance & hyper-arousal).
- II. Male undergraduate college students will be significantly different from female group in respect of their depression as experienced during lockdown phase.
- III. The psychological variables of the study, viz. post-traumatic stress (including its three factors- intrusion, avoidance & hyper-arousal) & depression would correlate significantly with each other for male & female group separately.

II. METHOD

Participants:

A Web-based survey composed of a group of 100 Undergraduate college students (50 males and 50 females) residing in Kolkata had been done during lockdown period. Participants belonging to 18 to 20 years old are considered for the present study. All are undergraduate college students and their family structures are nuclear type. Their monthly family income ranges from Rs. 25,000/- to 50,000/-. Subjects with chronic physical and mental disorder were excluded by suitable screening through questions asked in general information schedule.

Survey Instruments:

General Information Schedule: It elicits information about socio-demographic variables like age, sex, education, domicile, family structure and family income etc.

Impact of Event Scale—Revised (IES-R):The Impact of Event Scale (IES, Horowitz, Wilner, & Alvarez, 1979) is one of the most widely-used self-report measures within the trauma literature (Joseph, 2000, Weiss & Marmar, 1997). Therevised scale is developed by Weiss and Marmar (1997). The IES-R is a self-report measure designed to assess current subjective distress resulting from a traumatic life event and is composed of 22 items. Items correspond directly to 14 of the 17 DSM-IV symptoms of PTSD. Items are rated on a 5-point scale ranging from 0 ("not at all") to 4 ("extremely"). The IES-R yields a total score (ranging from 0 to 88). Scale scores are formed for the three subscales, which reflect intrusion (8 items), avoidance (8 items), and hyperarousal (6 items), and show a high degree of intercorrelation ($r_s = .52$ to $.87$, Creamer et al., 2003). High levels of internal consistency have been previously reported (Intrusion: Cronbach's $\alpha = .87 - .94$, Avoidance: Cronbach's $\alpha = .84 - .87$, Hyperarousal: Cronbach's $\alpha = .79 - .91$, Creamer et al., 2003; Weiss & Marmar, 1997). Test-retest reliability, collected across a 6-month interval, ranged from $.89$ to $.94$. Similar internal consistency and test-retest values have been reported with a Japanese translation of the IES-R (Asukai, et al., 2002).

The Center for Epidemiologic Studies—Depression Scale (CES-D):This scale is developed by Radloff (1977). The CES-D is a measure of depressive symptoms composed of 20 self-report items, each with a Likert rating scale from 0 to 3. The maximum score is 60 (10). A score of > 16 has been shown to identify persons with depressive symptoms similar in severity to the levels observed among depressed patients. High internal consistency has been reported with Cronbach’s alpha coefficients ranging from .85 to .90 across studies. Scores range from 0 (lowest) to 60 (highest), and patients are categorized into one of the following four groups: a) not depressed (0–9 points), b) mildly depressed (10–15 points), c) moderately depressed (16–24 points), or d) severely depressed (more than 25 points). The standard cut-off point of 16 or more was used to classify patients with depressive symptoms (Weissman et al. 1977). The internal consistency of the CES-D score in this study was 0.92.

Collection of Data:

Data were collected through web-based survey method from the undergraduate college students of Kolkata city during COVID-19 lockdown phase (between 3rd to 6th weeks). Both male and female college students were approached online through mail and social networking sites. All the interested participants were provided online questionnaires through mails.

III. RESULTS & DISCUSSION:

The present study intends to find out the nature of certain variables, their associations & gender differences perceived by undergraduate college students of both sexes living in Kolkata city during lockdown period.

Table-1: FINDINGS FROM DESCRIPTIVE STATISTICS:

VARIABLES		BIOLOGICAL SEX	N	MEAN	SD
Post-traumatic Stress		Male	50	37.440	14.770
		Female	50	44.020	14.465
Factors of Post-traumatic Stress	Intrusion	Male	50	13.340	5.324
		Female	50	15.740	6.067
	Avoidance	Male	50	15.260	5.546
		Female	50	17.200	5.617
	Hyper-arousal	Male	50	8.840	4.573
		Female	50	11.040	5.090
Depression		Male	50	19.140	6.709
		Female	50	26.680	9.511

Table-1 represents mean & standard deviation values of the variables under study on both sexes. In order to find out gender difference, z- test has been conducted and the results are given below. Data reveals that female college students are severely affected by PTSD whereas male college students may have a probable diagnosis of PTSD.

TABLE-2: Z-test values & results for testing the significance of mean difference between male & female undergraduate college students according to the variables under study.

VARIABLES		Z-TEST VALUE	Sig. (2-tailed) [p-Value]	RESULT	REMARKS
Post-traumatic Stress		-2.251	.024	p value<alpha value (p<0.05)	Statistically significant. Hence, H _a is accepted.
Factors of Post-traumatic Stress	Intrusion	-2.102	.035	p value<alpha value (p<0.05)	Statistically significant. H _a is accepted.
	Avoidance	-1.738	.081	p value>alpha value (p>0.05)	Statistically not significant. H _a is rejected.
	Hyper-arousal	-2.273	.023	p value<alpha value (p<0.05)	Statistically significant. H _a is accepted.
Depression		-4.580	.000	p value<alpha value (p<0.01)	Statistically significant. H _a is accepted.

Table-2 represents the z-test values for all the variables under study to test the significant mean difference between two sexes. From the above tables, it is seen that female undergraduate college students scored higher than males in post-traumatic stress (from table-1: Male Mean = 37.440; Female Mean = 44.020), which was significant at 0.05 level of significance. Furthermore, the analysis of differential effects for the three

factors of post traumatic stress revealed that in case of intrusion & hyper-arousal, female students scored higher than males (from table-1: for intrusion, Male Mean = 13.340; Female Mean = 15.740 & for hyper-arousal, Male Mean = 8.840; Female Mean = 11.040) which were significant at 0.05 level. But on the other hand, there revealed no significant gender differences in avoidance as $p > 0.05$. In case of depression, again female students had been found to be higher than their male counterpart (from Table-1: Male Mean = 19.140; Female Mean = 26.680) & it was found significant at 0.01 level. Thus, Hypothesis-I was partially accepted & it might be said that male undergraduate college students living in Kolkata significantly differed from their female counterparts in respect of post-traumatic stress (including intrusion & hyper-arousal), although there had found no gender difference in one factor of post-traumatic stress, i.e. avoidance. Moreover, it might be said that, Hypothesis-II was accepted as a whole indicating female undergraduate college students were dominant in depressive symptoms.

According to Christiansen & Hansen (2015), women have a two or three times higher risk of developing post-traumatic stress disorder compared to men. In a study it was revealed that women are significantly more likely to experience persistent unwanted pursuit (Brian H Spitzberg et al., 2010); whereas women are more likely than men to suffer from psychiatric disorders with hyperarousal symptoms including PTSD & major depression also (Debra A. Bangasser et al. 2019). The same picture had been found in the present study where females are significantly dominant in PTSD traits & depressive symptoms as depicted by their z-test values. Psychologist CJ John said that, initially people were afraid of contracting COVID-19, but now they are more worried about taking their life ahead. When lockdown continued & COVID-19 remained uncontrolled, it led to stress, depression & so on (May, 2020).

Table-3: Correlation Coefficients between Variables under study:

Biological Sex	N	Variables ↓	Variables							
			Post-traumatic Stress	Intrusion	Avoidance	Hyper-arousal				
Male	50	Post-traumatic Stress								
Female	50									
Male	50	Intrusion								
Female	50									
Male	50	Avoidance					.944**			
Female	50						.608**			
Male	50	Hyper-arousal					.865**	.795**		
Female	50						.667**	.601**		
Male	50	Depression					.868**	.877**	.768**	.850**
Female	50						.462**	.400**	.327*	.489**

From table-3, it can be seen that both male & female undergraduate college students of Kolkata city had statistically significant positive correlations between variables under study in most conditions at 0.01 level of significance & for correlation between depression & avoidance for female group indicated a significant positive correlation between these two variables at 0.05 level of significance. It implies as values in one variable under this study increased in both sexes, it would increase the value of other variables here also in the same direction. Therefore, it can be said that Hypothesis-III was also accepted summarily, indicating the psychological variables of the study, viz. post-traumatic stress (including its three factors- intrusion, avoidance & hyper-arousal) & depression would correlate significantly in positive direction with each other for male & female group separately.

Research suggests that depression can also be a common response after a traumatic or stressful event. A diagnosis of PTSD & depression commonly co-occur (Matthew Tull, 2020). Approximately half of people with PTSD also suffer from major depression as the comorbidity reflects overlapping symptoms in the two disorders (JD Flory, 2015). In a study, it was revealed that PTSD significantly predicted future depression, with the effect being partially mediated by the negative life events (Yuchang Jin, 2018). Thus the spread of deadly novel coronavirus that has now forced large parts of the world to go under lockdown, has taken a big toll on mental health of many people. The nationwide lockdown to prevent the spread of coronavirus has led to a peculiar situation for people to suffer from mental health issues like depression, anxiety, hyper-arousal & all. This scenario has also been captured by these college students who are emerging adults & main strength of human resource for tomorrow.

IV. CONCLUSION:

The present study revealed that post-traumatic stress including its factors viz. intrusion & hyper-arousal & depression almost all the variables under study had found to be gender dependent for undergraduate college students living in Kolkata in which female students found dominant in most conditions; & there also existed significant positive association between the above mentioned variables under study for those male & female college students of Kolkata during lockdown for Covid-19 pandemic.

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Debashree Sinha, et. al. "The effect of Lockdown due to Covid-19 on Post-traumatic Stress and Depression among College Students of Kolkata, hotspot district of West Bengal, India." *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 25(5), 2020, pp. 58-64.