

## Effect of COVID-19 Pandemic on Mental Health of Adolescent Girls in Semi-urban area of Maharashtra, India

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### ABSTRACT

**Background:** Corona Virus Disease-19 (COVID-19) is an infectious pandemic that has recently emerged. Preventive steps made to curb the spread have far-reaching consequences across all sectors and age groups. Adolescents are the most silent victims. They are not unconcerned about the COVID-19 Pandemic's severe psychological impact. Fears, uncertainty, significant changes in their routines, physical and social isolation, and a high level of parental stress affect them. The aim of this study is to identify the effect of the COVID-19 pandemic on mental health of adolescent girls.

**Methodology:** Data was collected through an online survey during the month of June and July 2021. In this study, 228 participants were included. The impact of the Corona virus pandemic on participants' mental health was assessed using a validated questionnaire.

**Result:** The study showed that most of the adolescent girls were feeling stressful due to not able to go to school (75%), not able to meet friends (56%) and confined in a house during COVID-19 pandemic. 66% girls showed fear of corona infection, 50% girls were worried, 35% were showed anxiety whereas 25% girls showed restlessness and fear of death due to COVID-19.

**Conclusion:** The findings imply that during the COVID-19 pandemic, adolescent girls are more concerned about government constraints aimed at preventing the virus's spread, and that these concerns are linked to higher anxiety, fear, restlessness, and worry. To avoid the situation from worsening, more research and support should be done.

**Keywords:** Adolescent girls; Corona Virus; Mental Health

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### INTRODUCTION

The Novel Coronavirus (COVID-19) epidemic originated in China in December 2019 and was declared a pandemic by the World Health Organization in March 2020 [1]. Pandemics and other public health events take a toll on both physical and mental health. Adolescents are the backbone of any community, as they are responsible for the country's future. Adolescents are defined by the World Health Organization (WHO) as a group of people aged 10 to 19 years old who stand between two susceptible populations: children and mothers [2-3]. Direct human contact has become highly restricted as a result of the deployment of social distancing strategies, with most activities that usually occupy the lives of youngsters — transitioning to electronic-based platforms for schooling, extracurricular activities, and peer interaction. The COVID-19 pandemic and its related societal response are expected to have far-reaching consequences for youth development and mental health [4].

Because of their little awareness of the situation, children are particularly vulnerable. They are physically and mentally unable to avoid the dangers of the scenario due to a lack of coping strategies. They may not be able to express their emotions like adults. Children may experience stress and anxiety as a result of school

closures and separation from peers. Mental distress may be exacerbated by exposure to crisis media coverage and unverified information spreading on social media [5-6]. Furthermore, the abrupt shift to online learning has resulted in social isolation and stay-at-home orders, which are likely to have negative repercussions for students' mental health, such as increased loneliness, anxiety, or depression [7].

Social isolation and distancing have serious social, economic, and psychological consequences. Adolescents, like adults, are subjected to drastic lifestyle changes, such as permanent school termination, fear of becoming infected or spreading the virus to vulnerable family members, perpetual ennui, frustration, lack of in-person contact with peers and teachers, lack of personal space at home, family isolation if institutionalized, or even an increase in domestic violence and abuse [8]. In consequence, such stressful conditions are more likely to lead to mental health issues [9-12].

Mental health issues in children and adolescents are particularly important since they might have long-term consequences [9,10,12]. Adolescents are more vulnerable to their immediate environment than adults, and they have fewer resources and previous experiences to cope with stressful events [13]. As a result of their emotions of insecurity, they are more influenced by stressful situations. Individual, family, or parenting-related risk and resilience factors influence the amount and the ability of children and adolescents to cope [14]. Jiao and others conducted a recent study in China that assessed children and adolescents for behavioural and emotional distress [15].

The most common issues they identified were anxiety, despair, distraction, anger, and the fear that family members would get the lethal disease [13]. Globally Mental health problems affect 10–20% of adolescents worldwide [14]. The aim of this study is to identify the effect of the COVID-19 pandemic on the mental health of adolescent girls.

## METHODOLOGY

A cross-sectional study was conducted in rural Maharashtra and a Snowball sampling technique was used in this study. Google forms were used to create an online structured questionnaire with a consent form attached. The questionnaire's link was circulated on different social media networks, such as WhatsApp. Participants were encouraged to complete the survey and distribute it to as many people as possible. Participants were automatically directed to information on informed consent and the questionnaire after receiving and clicking the Google forms link. They filled the socio-demographic information after agreeing to participate in the study. Then a set of questions appeared, which the participants had to answer in order. This online study is open to adolescent girls who has access to the internet. The questionnaire and informed consent were written in Marathi language. This study comprised participants who could comprehend Marathi and were willing to give informed consent. The data collection was done in the month of June and July 2021. We could collect data of 228 adolescent girls of age between 11 to 18 years from Khed block of Pune district of Maharashtra, India. The socio-demographic variables included age of girls, education of girls, occupation of father, education of mother and father and type of family.

During the pandemic of the new coronavirus, the investigators created an online self-reported questionnaire that included factors related to reasons for stress among girls and forms of stress among adolescent girls.

### Statistical Analysis

For socio-demographic characteristics and psychological symptoms, descriptive statistics were calculated. The analysis was carried out using SPSS software version 23. Cross tabulation and Chi Square Test were used to draw meaningful conclusion with a significance level of  $p < 0.05$ .

## RESULTS

Out of 300 adolescent girls to whom online questionnaire was distributed, only 76% (228) filled the questionnaire. Out of 228 girls, (45.6%) 104 belonged to age group 11 to 14 years and (54.4%) 124 belongs to 15-18 years. Out of the total respondents, 23.7% (54) were in 5<sup>th</sup>-6<sup>th</sup> class, 42.1% (96) were in 8<sup>th</sup>-10<sup>th</sup> class, 25.9% (59) were in 11<sup>th</sup> – 12<sup>th</sup> class and 8.3% (19) were educated above 12<sup>th</sup> standard. With respect to the status of occupation of father, 8.7% (20) respondents were stating that their father was doing his own

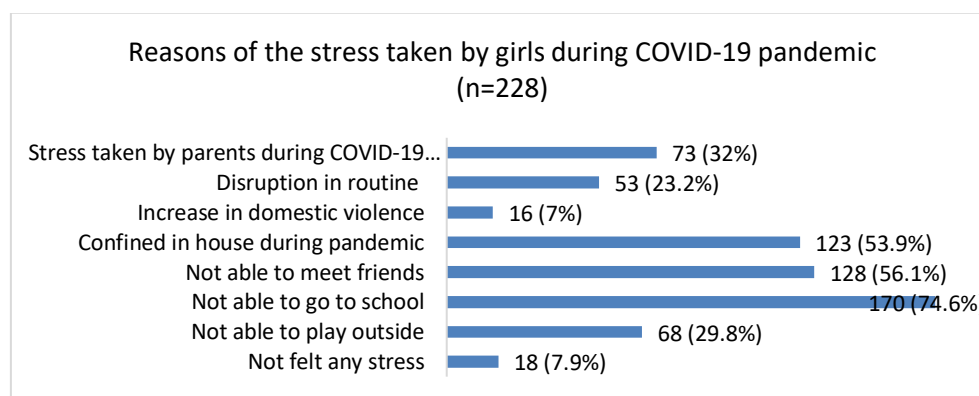
business, 63.2% (144) were stated that their father was farmer, 6.1% (14) girls told that their father was labourer, 7.9% (18) girls' father were doing private jobs, 2.2% (5) were doing government jobs, 6.1% (14) were doing other types of job and fathers of 3% (7) girls were no more. Out of 228 girls, 66 stated that they were living in nuclear families, 94 girls were living in small extended families and 68 girls were living in large extended families.

**Table 1: Number of girls stating education of their fathers and mothers**

Standard	Education of Father (n=221)	Education of Mother (n=228)
1 <sup>st</sup> – 4 <sup>th</sup>	25 (11.3%)	23 (10%)
5 <sup>th</sup> – 7 <sup>th</sup>	35 (15.8%)	71 (31.1%)
8 <sup>th</sup> – 10 <sup>th</sup>	80 (36.2%)	78 (34.2%)
More than 10 <sup>th</sup> std.	64 (29%)	29 (12.7%)
Illiterate	17 (7.8%)	27 (11.8%)

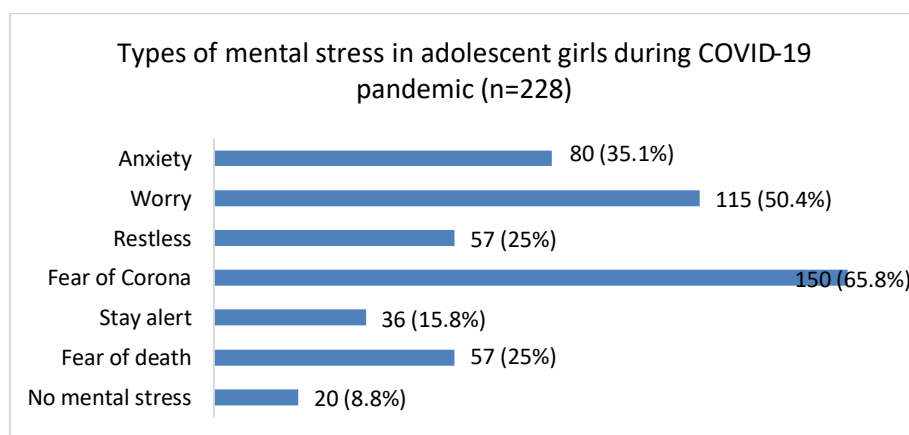
Approximately 36% girls were reported their father's education between 8<sup>th</sup> to 10<sup>th</sup> standard and 29% girls were reported more than 10<sup>th</sup> standard, whereas around 34% girls reported their mother's education between 8<sup>th</sup> to 10<sup>th</sup> standard and 31% reported between 5<sup>th</sup> to 7<sup>th</sup> standard.

**Chart 1: Reasons of the stress taken by girls during COVID-19 pandemic (n=228)**



Approximately, 75% adolescent girls were taken stress due to not able to go to school during pandemic, 56% girls were taken stress due to not able to meet friends, 54% were stressful due to confined in a house during pandemic, 32% were stressful due to stress taken by parents, around 30% were stressful due to not able to play outside, 23% due to disruption in routine work whereas around 8% girls didn't feel any type of stress during lockdown.

**Chart 2: Types of mental stress in adolescent girls during COVID-19 pandemic (n=228)**



### Education of adolescent girls and mental distress

There is a significant association between education of adolescent girls and some reasons for mental distress among adolescent girls, including “not able to go to school” ( $P=0.003$ ); and “not able to play outside” ( $P = 0.03$ ). There is no association between girls’ education and responses, including “stress taken by parents”, “disruption in routine work”, “confine in house” and “not able to meet friends” during COVID-19 pandemic.

**Table 2: Association between education of adolescent girls and reasons for mental distress due to COVID-19 outbreak**

Education of girls (n=228)								
Variables	5 <sup>th</sup> -7 <sup>th</sup> (n=54)	Std.	8 <sup>th</sup> -10 <sup>th</sup> (n=81)	Std.	11 <sup>th</sup> -12 <sup>th</sup> (n=59)	Std.	Above 12 <sup>th</sup> Std. (n=19)	P-value
Stress taken by parents during COVID-19 pandemic								
Yes	14 (25.9%)		34 (42%)		19 (32.2%)		5 (26.3%)	0.21
No	40 (73.9%)		47 (58%)		40 (67.8%)		14 (73.7%)	
Disruption in routine work								
Yes	9 (16.6%)		24 (29.6%)		13 (22%)		6 (31.6%)	0.3
No	45 (83.4%)		57 (70.4%)		46 (78%)		13 (68.4%)	
Confined in house								
Yes	32 (59.3%)		49 (60.5%)		31 (52.5%)		10 (52.6%)	0.7
No	22 (40.7%)		32 (39.5%)		28 (47.5%)		9 (47.4%)	
Not able to meet friends								
Yes	34 (63%)		53 (65.4%)		29 (49.2%)		11 (57.9%)	0.2
No	20 (37%)		28 (34.6%)		30 (50.8%)		8 (42.1%)	
Not able to go to school								
Yes	44 (81.5%)		73 (90.1%)		39 (66.1%)		13 (68.4%)	0.003
No	10 (18.5%)		8 (9.9%)		20 (33.9%)		6 (31.5%)	
Not able to play outside								
Yes	20 (37%)		32 (39.5%)		12 (20.3%)		3 (15.8%)	0.03
No	34 (63%)		49 (60.5%)		47 (79.7%)		16 (84.2%)	

### Age of adolescent girls and reasons for mental distress due to COVID-19 outbreak

There is a significant association between age of adolescent girls and some reasons for mental distress among adolescent girls, including “stress taken by parents” ( $P=0.024$ ), “not able to go to school” ( $P=0.035$ ); and “not able to play outside” ( $P = 0.0058$ ). There is no association between age of the girls and responses, including “disruption in routine work”, “confine in house” and “not able to meet friends”.

**Table 3: Association between age of adolescent girls and reasons for mental distress due to COVID-19 outbreak**

Age groups of girls (n=228)			
Variables	11-14 years (n=104)	15-18 years (n=124)	P-value
Stress taken by parents during COVID-19 pandemic			
Yes	25 (24%)	47 (38%)	0.024
No	79 (76%)	77 (62%)	
Disruption in routine work			
Yes	19 (18.3%)	33 (26.6%)	0.134
No	85 (81.7%)	91 (73.4%)	
Confined in house			
Yes	54 (51.9%)	68 (54.8%)	0.66
No	50 (48.1%)	56 (45.2%)	
Not able to meet friends			
Yes	62 (59.6%)	65 (52.4%)	0.275
No	42 (40.4%)	59 (47.6%)	
Not able to go to school			

Yes	84 (80.8%)	85 (68.5%)	0.035
No	20 (19.2%)	39 (31.5%)	
Not able to play outside			
Yes	40 (38.5%)	27 (26%)	0.0058
No	64 (61.5%)	97 (74%)	

#### Family types of adolescent girls and reasons for mental distress due to COVID-19 outbreak

There is a significant association between types of family of adolescent girls and some reasons for mental distress among adolescent girls, including “stress taken by parents” ( $P=0.039$ ). There is no association between types of family of girls and responses, including “disruption in routine work”, “confine in house”, “not able to meet friends”, “not able to go to school” and “not able to play outside”.

**Table 4: Association between family types of adolescent girls and reasons for mental distress due to COVID-19 outbreak**

Types of family (n=228)				
Variables	Nuclear (n=66)	Small extended (n=94)	Large extended (68)	P-value
Stress taken by parents during COVID-19 pandemic				
Yes	28 (42.4%)	29 (30.9%)	15 (22%)	0.039
No	38 (57.6%)	65 (69.1%)	53 (78%)	
Disruption in routine work				
Yes	17 (25.8%)	18 (19.1%)	17 (25%)	0.54
No	49 (74.2%)	76 (80.9%)	51 (75%)	
Confined in house				
Yes	30 (45.5%)	51 (54.3%)	41 (60.3%)	0.22
No	36 (54.5%)	43 (45.7%)	27 (39.7%)	
Not able to meet friends				
Yes	39 (59%)	55 (58.5%)	33 (48.5%)	0.36
No	27 (41%)	39 (41.5%)	35 (51.5%)	
Not able to go to school				
Yes	49 (74.2%)	70 (74.5%)	50 (73.5%)	0.99
No	17 (25.8%)	24 (25.5%)	18 (26.5%)	
Not able to play outside				
Yes	21 (31.8%)	26 (27.7%)	20 (29.4%)	0.85
No	45 (68.2%)	68 (72.3%)	48 (70.6%)	

#### Education of adolescent girls and types of mental distress due to COVID-19 outbreak

There is a significant association between education of adolescent girls and types of mental distress among adolescent girls, including “fear of being corona positive” ( $P=0.006$ ),

There is no association between education of girls and responses, including “anxiety”, “worry”, “restlessness”, “stay alert all time” and “fear of death”.

**Table 5: Association between education of adolescent girls and types of mental distress due to COVID-19 outbreak**

Education of girls (n=228)						
Variables	5 <sup>th</sup> -7 <sup>th</sup> Std. (n=54)	8 <sup>th</sup> -10 <sup>th</sup> (n=81)	Std.	11 <sup>th</sup> -12 <sup>th</sup> (n=78)	Std.	P-value
Anxiety						
Yes	14	34		32		0.123
No	40	47		46		
Worry						
Yes	28	47		40		0.65
No	26	34		38		
Restlessness						

Yes	12	25	20	0.51
No	42	56	58	
Fear of being corona positive				
Yes	40	65	45	0.006
No	14	16	33	
Stay alert all time				
Yes	9	14	13	0.9
No	45	67	65	
Fear of death				
Yes	17	22	18	0.55
No	37	59	60	

#### Education of mothers and types of mental distress due to COVID-19 outbreak

There is a significant association between education of mothers and types of mental distress among adolescent girls, including “fear of being corona positive” (P=0.006),

There is no association between education of girls and responses including “anxiety”, “worry”, “restlessness” and “fear of death”.

**Table 6: Association between education of mothers and types of mental distress due to COVID-19 outbreak**

Education of mothers (n=228)					
Variables	Illiterate (n=27)	1 <sup>st</sup> - 4 <sup>th</sup> Std. (n=23)	5 <sup>th</sup> -7 <sup>th</sup> Std. (n=71)	8 <sup>th</sup> Std. and above (n=107)	P-value
Anxiety					
Yes	11 (40.7%)	12 (52.2%)	23 (32.4%)	34 (31.8%)	0.25
No	16 (59.3%)	11 (47.8%)	48 (67.6%)	73 (68.2%)	
Worry					
Yes	14 (51.9%)	14 (60.9%)	38 (53.5%)	49 (45.8%)	0.52
No	13 (48.1%)	9 (39.1%)	33 (46.5%)	58 (54.2%)	
Restlessness					
Yes	9 (33.3%)	6 (26.1%)	20 (28.2%)	22 (20.6%)	0.47
No	18 (66.6%)	17 (73.9%)	51 (71.8%)	85 (79.4%)	
Fear of being corona positive					
Yes	11 (40.7%)	16 (69.6%)	55 (77.5%)	67 (62.6%)	0.006
No	16 (59.3%)	7 (30.4%)	16 (22.5)	40 (37.4%)	
Fear of death					
Yes	4 (14.8%)	9 (39.1%)	15 (21.1%)	29 (27.1%)	0.18
No	23 (85.2%)	14 (60.9%)	56 (78.9%)	78 (72.9%)	

#### Family types of adolescent girls and types of mental distress due to COVID-19 outbreak

There is a significant association between types of family of adolescent girls and types of mental distress among adolescent girls, including “restlessness” (P=0.012),

There is no association between types of family of girls and responses, including “anxiety”, “worry”, “fear of being corona positive”, “stay alert all time” and “fear of death”.

**Table 7: Association between family types of adolescent girls and types of mental distress due to COVID-19 outbreak**

Types of family				
Variables	Nuclear (n=66)	Small extended (n=94)	Large extended (68)	P-value
Anxiety				
Yes	25 (37.9%)	30 (31.9%)	25 (36.8%)	0.69
No	41 (62.1%)	64 (68.1%)	43 (63.2%)	

Worry				
Yes	35 (53%)	48 (51.1%)	32 (47.1%)	0.77
No	31 (47%)	46 (48.9%)	36 (52.9%)	
Restlessness				
Yes	22 (33.3%)	14 (14.9%)	21 (30.9%)	0.012
No	44 (66.6%)	80 (85.1%)	47 (69.1%)	
Fear of being corona positive				
Yes	43 (65.2%)	65 (69.1%)	42 (61.8%)	0.61
No	23 (34.8%)	29 (30.9%)	26 (38.2%)	
Stay alert all time				
Yes	11 (16.7%)	15 (16%)	10 (14.7%)	0.95
No	55 (83.3%)	79 (84%)	58 (85.3%)	
Fear of death				
Yes	17 (25.8%)	25 (26.6%)	15 (22.1%)	0.79
No	49 (74.2%)	69 (73.4%)	53 (77.9%)	

## DISCUSSION

Mental health issues are already a concern that we are dealing with. The state government-imposed lockdown in response to the COVID-19 outbreak, which included school closures. While these steps were taken to prevent the disease from spreading, the negative implications of economic hardship, school closures, and negative health consequences have the potential to reverse recent educational gains. Government-imposed restrictions to contain the virus have physically and socially segregated adolescents from their friends, extended families, and other social support networks, leaving many feelings socially isolated and, as a result, at an elevated risk of mental illness. Age, sex, disruptions in education, COVID-19 related distress, family conflict, social connection, and adhere to COVID-19 related limitations were all explored as potential modifiers of change in mental health symptoms. A crisis like the COVID-19 epidemic may make parents and caregivers afraid and concerned about their own health and inability to meet pressing economic requirements, particularly in developing nations. Fear may be contagious, according to extensive study, and children are particularly sensitive to the emotional state of the adult around them, who are their primary source of security and emotional well-being.

During the COVID-19 pandemic, one study (n=320) from the United States found that 28% of adolescents were worried [15]. In our study, we found that 50.4% adolescent girls were worried during COVID-19 pandemic. Anxiety symptoms were shown to be prevalent in 37.4% of 12–18-year-old children in a large size study (n = 8079) done in China [16]. In the present study, around 35% girls showed anxiety during a COVID-19 pandemic. In a similar manner, Pisano et al. did a study in Italy, and the results revealed that 53.5 percent of the youngsters were more restless [17]. In our study, we found that 25% adolescent girls showed restlessness during COVID lockdown. Fear of the Coronavirus was the most powerful independent predictor of stress. This is not surprising, considering that virus fear has been shown to cause stress during quarantine or lockdown periods [18]. In the current study, around 66% girls were showing fear of COVID-19 infection. Only a small percentage of people (2.61 percent) expressed a fear of dying due to COVID-19. These low figures can be explained by the fact that the virus arrived in Central Europe later than it did in Western and Southern Europe (i.e., Italy), giving the Hungarian population more time to prepare and better information [19]. In our study, we found that fear of death due to COVID-19 among girls was 25%.

According to some reports, adolescents may have had greater incidence of mental illness under lockdown [20, 21]. One study found that parents with higher level of distress and anxiety reported experiencing distress in their children [22]. The findings of our study showed 32% girls were stressful due to stress taken by parents during COVID-19 pandemic. According to developmental theory, peer interactions and social contact are extremely important during adolescence [23], and previous findings [24], the current data demonstrated that the main concern of adolescents during the COVID-19 lockdown was being unable to see their peers. In fact, all items that mentioned friends or a social connection was priorities over any other COVID-19-related worries. In our study, we found that around 56% girls were taken stress due to not able to meet friends.

Recent findings show that during the COVID-19 epidemic, parent-reported mental health problems in children were positively related to the number of family members living in the home. [25]. In the present study, we found that there is a significant association between “restlessness” among girls and the number of family members in the home ( $p=0.012$ ). We didn’t find any association between other symptoms of stress and the number of family members in home.

More emotional issues in children were linked to higher parental education. One reason could be that more parental education was linked to more parental distress during COVID-19, probably due to greater perceived difficulty in balancing paid work and childcare responsibilities [26-27]. This could have had an adverse effect on the child’s mental health [28]. In the present study, there is a significant association between mother’s education and “fear of coronavirus infection” ( $p=0.006$ ) among adolescent girls only. There is no association between other symptoms of stress and mother’s education during pandemic.

## CONCLUSION

Ignoring the COVID-19 Pandemic's immediate and long-term psychological consequences would be dangerous, especially for adolescent girls. The current study contributes to this by determining which COVID-19-related characteristics increased the risk of adolescent mental health disorders during the pandemic. Specifically, COVID-19-related worry, anxiety, and fear were linked to a higher level of psychological maladjustment.

According to the findings, adolescent girls' top concerns during the COVID-19 crisis were disruptions to their social connections and activities but concerns about not being allowed to play out and disruptions in everyday activities were relatively low. This shows that the constraints put in place to slow the spread of the virus are causing adolescents the most distress. Adolescents’ social isolation, interpersonal stress, and mental health difficulties can all be precursors to mental health issues later in life. Finally, as research on the mental health impact of COVID-19 on adolescent girls is still in its early stages, more longitudinal studies are needed to obtain a better understanding of the pandemic's long-term effects on adolescent girls’ emotional well-being.

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