

Comparative study on psychosocial and physical problems among adolescents during COVID lockdown and post-COVID lockdown in Western Uttar Pradesh

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Abstract:

Background: COVID-19 pandemic has brought about a sense of fear and anxiety all around the world resulting in a nationwide lockdown that confined many children and teenagers, profoundly impacting their psychosocial and mental health. These adverse impacts on mental health led to harmful lifestyle changes such as increasing unhealthy eating habits, sedentary behavior, or sleeping disorders among children. Study aimed to identify potential changes in adolescent psychosocial functioning and physical health from pandemic to post-pandemic assessment.

Materials and Methods: A school based cross sectional study was conducted among 262 adolescents for a period of three months. A predesigned, pretested, semi- structured questionnaire was made and data was collected on psychosocial and physical problems faced by adolescents faced during COVID lockdown and continuation these issues post lockdown. Data was collected and analyzed using appropriate statistical tests.

Results: A significant difference in psychosocial and physical factors was observed when comparison was made between the COVID lockdown period and post lockdown period. Problems of feeling sad/ hopelessness, restless/ over activeness, disturbed sleep pattern, financial problems and parenteral conflicts increased during lockdown period. Physical activities of watching of television/ video games, intake of food and junk items, significantly increased. When comparison was done on basis of gender, type of family and age; female participants, younger age group were found to be more effected.

Conclusion: The findings of the study concluded that there has been a change in adolescents' lifestyle and daily habits, resulting in significant impact on mental and physical wellbeing which will influence their future growth. Consequently, it is essential to acknowledge the urgency of the matter concerning children's mental health challenges and to formulate immediate interventions.

Key Word COVID, Pandemic, Lockdown, Adolescents, Psychosocial, Physical

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I. Introduction

The covid-19 pandemic created a global crisis in march 2020 which led to imposition of lockdowns, isolation, school closures and social distancing [1]. Physical activity is thought to be one of the most effective lifestyle methods to cope with stressful circumstances, therefore these impositions are recognized to be harmful to the population's health in the long run [1]. Adolescents appear to be the most vulnerable age group, mainly because of school closures, which can cause them to become socially isolated and possibly lose access to all health treatments that are provided through schools [2]. Adolescents have high social impulses and hormonal changes, which make it difficult for them to isolate at home [3]. Lockdown had many devastating psychological, emotional, social, and sexual implications with special focus on children as it not only suspended normal childhood activities such as interacting with extended family and friends, playing outdoors, and exploring nature but also disrupted the consequent socio-emotional benefits that accrue from children's engagement in these experiences [2]. These weren't the only things that stressed them out, but they also missed out face-to-face classes and training sessions since they had to take online classes due to imposition of lockdown [4]. Due to COVID 19, the effects on lifestyle and mental health varied depending on the age of the child and whether they were male or female. Understanding what actions need to be taken to minimize potential health issues connected to COVID-19 among teenagers seems to be vital. As a result, this study was planned.

II. Material And Methods

Study Design: Community Based cross sectional study

Study Location: Rural Health Training Centre under the Department of Community Medicine, SMMH Medical College, Saharanpur.

Study Duration: November, 2023 to February, 2024.

Sample size: 262 study subjects.

Sample size calculation: Sample size was calculated as 262 taking prevalence of psychosocial problems among adolescents as 20.7 [5], at 95% confidence interval and allowable error of 5% as absolute precision using Open Epi software as 262.

Subjects & selection method: The participants included were all the adolescent boys and girls between 10 to 19 years of age, who came to the rural health center for treatment or accompanied any patients.

Inclusion criteria:

1. All adolescent girls and boys (10-19 years) of age visiting RHTC.
2. All those who gave assent/consent to participate in the study.

Exclusion criteria:

1. Those who showed hostile behavior and did not give consent.
2. Those adolescents who were seriously ill.
3. Those who gave incomplete information.

Procedure methodology

Convenience sampling method was used for selection of study participants. Purpose of the study was explained and those who gave assent/consent to participate were included. Those who showed hostile behavior, did not give consent or were seriously ill were excluded. Data was collected using a pretested, semi structured questionnaire. A pilot study was done on twenty study subjects and the required changes were done before data collection. The questionnaire consisted of three components which were sociodemographic factors, psychosocial problems and physical problems faced during COVID lockdown and post- COVID lockdown.

Statistical analysis

After the data collection, it was entered in excel sheet, cleaned and statistically analyzed using SPSS software. Categorical data was presented as frequencies and percentages and their association was determined using Chisquare and Fishers Exact test. Normally distributed data was shown using mean and standard deviation. A p value < 0.05 was considered as statistically significant.

III. Result

The mean age of the 262 study participants was 14.55 ± 1.74 years among which majority of the study participants were females (69.8%), studying in class 11th and 12th (53.1%), belonged to joint family (58.4%) and were Hindu by religion (89.3%) (table 1). Out of the total participants, 67% fathers and 63% mothers lost their jobs during COVID. Of the remaining who were working 40% of the fathers and 86% of the mothers were working from home (Table 1).

Table no 1: Sociodemographic factors of study participants (N=262).

Variables	Categories	No. of participants n (%)	
Age (years)	Mean $\pm$ S.D.	14.55 $\pm$ 1.74	
Gender	Female	183	69.8
	Male	79	30.2
Class	7 th - 8 th	36	13.7
	9 th - 10 th	87	33.2
	11 th - 12 th	139	53.1

Type of family	Nuclear	98	37.4
	Joint	153	58.4
	Three generation	11	4.2
Religion	Hindu	234	89.3
	Muslim	23	8.8
	Christian	3	1.1
	Sikh	2	0.8
Father lost job during COVID lockdown	Yes	176	67
	No	86	33
Site of working (N=86)	From home	34	40
	On-site	52	60
Mother lost job during COVID lockdown	Yes	165	63
	No	97	37
Site of working (N=97)	From home	83	86
	On-site	14	14

A significant difference in psychosocial and physical factors was observed when comparison was made between the COVID lockdown period and post lockdown period (table 2,3). Problems of feeling sad/hopelessness, restless/ over activeness, disturbed sleep pattern, financial problems and parenteral conflicts increased during lockdown period. Physical activities of watching of television/ video games, increased during lockdown whereas intake of junk food items significantly increased after lockdown. Also, activities like involvement in physical activities and outdoor games significantly decreased during COVID lockdown which in turn lead to significant increased weight gain.

Table no2: Psychosocial problems among study participants during and post COVID lockdown (N=262).

Parameters	Variables	During lockdown n (%)		Post lockdown n (%)		X ² P value
Feel sad/hopeless and crying	Yes	173	66.0	108	41.2	32.422 < 0.01
	No	89	34.0	154	58.8	
Feel restless/overactive	Yes	134	51.1	92	35.1	13.724 < 0.01
	No	128	48.9	170	64.9	
Loose temper easily	Yes	137	52.3	126	48.1	0.923 0.336
	No	125	47.7	136	51.9	
Lack of confidence	Yes	103	39.3	87	33.2	2.113 0.145
	No	159	60.7	175	66.8	
Attention span	Good	123	46.9	124	47.3	0.039 0.980
	Average	72	27.5	70	26.7	
	Poor	67	25.6	68	26.0	
Sleep pattern	Sleep as usual	115	43.9	148	56.5	44.313 < 0.01
	Decreased sleep	57	21.8	87	33.2	

	Increased sleep	90	34.3	27	10.3	
Faced financial problems	Yes	174	66.4	107	40.8	34.448 < 0.01
	No	88	33.6	155	59.2	
Parental conflicts	Increased	79	30.2	30	11.5	35.053 < 0.01
	Decreased	101	38.5	97	37.0	
	Same	82	31.3	135	51.5	
Relationship with parents	Improved	110	42.0	91	34.7	7.800 < 0.05
	Gotten worse	37	14.1	25	9.6	
	Same	115	43.9	146	55.7	
Physical abuse/verbal abuse	Yes	75	28.6	71	27.1	0.151 0.696
	No	187	71.4	191	72.9	
Mental abuse/emotional	Yes	102	38.9	96	36.6	0.292 0.588
	No	160	61.1	166	63.4	

Table no 3: Physical problems among study participants during and post COVID lockdown (N=262)

Parameters	Variables	During lockdown n (%)		Post lockdown n (%)		X ² P value
Duration of watching television/video games	Don't watch	55	21.0	115	43.9	59.992 < 0.01
	Up to 1 hour	115	43.9	122	46.5	
	1-3 hours	54	20.6	13	5.0	
	> 3 hours	38	14.5	12	4.6	
Suffered from vision related problems	Yes	48	18.3	55	21.0	0.592 0.441
	No	214	81.7	207	79.0	
Increased intake of food	Yes	125	47.7	87	33.2	11.439 < 0.05
	No	137	52.3	175	66.8	
Intake of junk food	none	144	55	67	25.6	73.678 < 0.01
	1-2 times / week	100	38.2	109	41.6	
	2-5 times / week	14	5.3	55	21.0	
	7 days / week	4	1.5	31	11.8	
Time spent on your hobby	None	86	32.8	82	31.3	0.564 0.904
	Upto 1 hour	118	45.0	126	48.1	
	1-3 hours	33	12.6	32	12.2	
	> 3 hours	25	9.6	22	8.4	
Physical exercise	No	139	53.1	85	32.4	23.042 < 0.05
	Upto 1 hour	104	39.7	147	56.1	
	1-3 hours	15	5.7	22	8.4	

	> 3 hours	4	1.5	8	3.1	
Playing outdoor games	No	189	72.1	101	38.6	61.478 < 0.01
	Upto 1 hour	53	20.2	103	39.3	
	1-3 hours	11	4.2	36	13.7	
	> 3 hours	9	3.5	22	8.4	
Aggravation of pre-existing illness	Yes	39	14.9	22	8.4	5.361 < 0.05
	No	223	85.1	240	91.6	
Weight gain	Yes	121	46.2	91	34.7	7.129 < 0.01
	No	141	53.8	171	65.3	
Increased episodes of sickness	Yes	37	14.1	40	15.3	0.137 0.711
	No	225	85.9	222	84.7	

As depicted in table 4 and 5, When comparison was done on basis of gender, type of family and age; female participants were found to be more effected as they felt Feel sad/ hopeless, poor Attention span, decreased sleep, effected by parental conflicts, faced mental and verbal abuse. In terms of age groups, the younger group felt sadder and more helpless in comparison to older age group. Relationship with parents improved for older age group while it deteriorated with younger age group. Older age group participants faced emotional abuse higher than the younger population. Participants living in a joint family felt restless/ overactive, Faced financial problems, improved relationship with parents. While participants living in nuclear family faced physical/ verbal abuse.

Table no 4: Association of psychosocial factors with gender, age and type of family during COVID lockdown period

Variables	Sub-Variables	Total N (%)	Gender		X ² P	Age (in yrs)		X ² P	Type of family		X ² P
			Female	Male		10- 14	15- 19		Nuclear	Joint	
Feel sad/ hopeless	Yes	173 (66.0)	133 (76.9)	40 (23.1)	11.955 <0.01	90 (52.0)	83 (48.0)	6.098 < 0.05	60 (34.7)	113 (65.3)	1.612 0.204
	No	89 (34.0)	50 (56.2)	39 (43.8)		32 (36.0)	57 (64.0)		38 (42.7)	51 (57.3)	
Feel restless/ overactive	Yes	134 (51.1)	96 (71.6)	38 (28.4)	0.419 0.517	57 (42.5)	77 (57.5)	1.788 0.181	38 (28.4)	96 (71.6)	9.587 < 0.01
	No	128 (48.9)	87 (68.0)	41 (32.0)		65 (50.8)	63 (49.2)		60 (46.9)	68 (53.1)	
Loose temper easily	Yes	137 (52.3)	96 (70.1)	41 (29.9)	0.007 0.934	58 (42.3)	79 (57.7)	2.064 0.151	46 (33.6)	91 (66.4)	1.797 0.180
	No	125 (47.7)	87 (69.6)	38 (30.4)		64 (51.2)	61 (48.8)		52 (41.6)	73 (58.4)	
Lack of confidence	Yes	103 (39.3)	73 (70.9)	30 (29.1)	0.085 0.771	50 (48.5)	53 (51.5)	0.267 0.605	40 (38.8)	63 (61.2)	0.148 0.700
	No	159 (60.7)	110 (69.2)	49 (30.8)		72 (45.3)	87 (54.7)		58 (36.5)	101 (63.5)	
Attention span	Good	123 (46.9)	90 (73.2)	33 (26.8)	5.862 <0.05	56 (45.5)	67 (54.5)	2.783 0.249	44 (35.8)	79 (64.2)	0.264 0.876
	Average	72 (27.5)	54 (75.0)	18 (25.0)		39 (54.2)	33 (45.8)		28 (38.9)	44 (61.1)	

	Poor	67 (25.6)	39 (58.2)	28 (41.8)		27 (40.3)	40 (59.7)		26 (38.8)	41 (61.2)	
Sleep pattern	Sleep as usual	115 (43.9)	71 (61.7)	44 (38.3)	6.676 < 0.05	49 (42.6)	66 (57.4)	2.125 0.346	36 (31.3)	79 (68.7)	3.390 0.184
	Decreased sleep	57 (21.8)	42 (53.7)	15 (26.3)		31 (54.4)	26 (45.6)		23 (40.4)	34 (59.6)	
	Increased sleep	90 (34.3)	70 (77.8)	20 (22.2)		42 (46.7)	48 (53.3)		39 (43.3)	51 (56.7)	
Faced financial problems	Yes	174 (66.4)	117 (67.2)	57 (32.8)	1.670 0.196	78 (44.8)	96 (55.2)	0.628 0.428	55 (31.6)	119 (68.4)	7.431 <0.01
	No	88 (33.6)	66 (75.0)	22 (25.0)		44 (50.0)	44 (50.0)		43 (48.9)	45 (51.1)	
Parenteral conflicts	Increased	79 (30.2)	54 (68.4)	25 (31.6)	8.250 <0.05	36 (45.6)	43 (54.4)	1.155 0.561	28 (35.4)	51 (64.6)	1.255 0.534
	Decreased	101 (38.5)	80 (79.2)	21 (20.8)		51 (50.5)	50 (49.5)		42 (41.6)	59 (58.4)	
	Same	82 (31.3)	49 (59.8)	33 (40.2)		35 (42.7)	47 (57.3)		28 (34.1)	54 (65.9)	
Relationship with parents	Improved	110 (42.0)	83 (75.5)	27 (24.5)	2.904 0.234	49 (44.5)	61 (55.5)	10.036 < 0.01	35 (31.8)	75 (68.2)	6.871 < 0.05
	Worsen	37 (14.1)	25 (67.6)	12 (32.4)		26 (70.3)	11 (29.7)		10 (27.0)	27 (73.0)	
	Same	115 (43.9)	75 (65.2)	40 (34.8)		47 (40.9)	68 (59.1)		53 (46.1)	62 (53.9)	
Mental/ emotional abuse	Yes	102 (38.9)	55 (53.9)	47 (46.1)	20.114 <0.01	39 (38.2)	63 (61.8)	4.65 <0.05	40 (39.2)	62 (60.8)	0.234 0.628
	No	147 (61.1)	128 (87.1)	32 (12.9)		83 (56.5)	77 (43.5)		58 (39.5)	102 (60.5)	
Physical/ verbal abuse	Yes	75 (28.6)	33 (44.0)	42 (56.0)	33.33 <0.01	39 (52.0)	36 (48.0)	1.248 0.2640	45 (60.0)	30 (40.0)	22.91 <0.01
	No	187 (71.4)	150 (80.2)	37 (19.8)		83 (44.4)	104 (55.6)		53 (28.3)	134 (71.7)	

Table no 5: Association of physical factors with gender, age and type of family during COVID lockdown period.

Variables	Sub-Variables	Total n (%)	Gender		X ² P	Age (In yrs)		X ² P	Type of family		X ² P
			Female	Male		10-14	15-19		Nuclear	Joint	
Played with friends	Don't play	176 (67.2)	129 (73.3)	47 (26.7)	10.761 <0.05	82 (46.6)	94 (53.4)	1.087 0.780	66 (37.5)	110 (62.5)	1.251 0.741
	1-2 times/week	52 (19.8)	38 (73.1)	14 (26.9)		26 (50.0)	26 (50.0)		17 (32.7)	35 (67.3)	
	2-5 times/week	10 (3.8)	6 (60.9)	4 (40.0)		5 (50.0)	5 (50.0)		4 (40.0)	6 (60.0)	
	All 7 days	24 (9.2)	10 (41.7)	14 (58.3)		9 (37.5)	15 (62.5)		11 (45.8)	13 (54.2)	
Duration of watching television/video games	Don't watch	55 (21.0)	40 (72.7)	15 (27.3)	19.753 < 0.01	25 (45.5)	30 (54.5)	6.062 0.109	12 (21.8)	43 (78.2)	10.576 < 0.05
	Upto 1 hour	115 (43.9)	88 (76.5)	27 (23.5)		59 (51.3)	56 (48.7)		54 (47.0)	61 (53.0)	

	1-3 hours	54 (20.6)	40 (74.1)	14 (25.9)		27 (50.0)	27 (50.0)		18 (33.3)	36 (66.7)	
	> 3 hours	38 (14.5)	15 (39.5)	23 (60.5)		11 (28.9)	27 (71.1)		14 (36.8)	24 (63.2)	
Suffered from vision problems	Yes	48 (18.3)	10 (20.8)	38 (79.2)	2.423 0.163	26 (54.2)	22 (45.8)	1.365 0.265	20 (41.7)	28 (58.3)	0.456 0.513
	No	214 (81.7)	69 (32.2)	145 (67.8)		96 (44.9)	118 (55.1)		78 (36.4)	136 (63.6)	
Increased intake of food	Yes	125 (47.7)	86 (68.8)	39 (31.2)	0.125 0.724	56 (44.8)	69 (55.2)	0.299 0.584	49 (39.2)	76 (60.8)	0.329 0.566
	No	137 (52.3)	97 (70.8)	40 (29.2)		66 (48.2)	71 (51.8)		49 (35.8)	88 (64.2)	
Intake of junk food	none	144 (55)	110 (76.4)	34 (23.6)	7.407 0.06	65 (45.1)	79 (54.9)	1.170 0.760	48 (33.3)	96 (66.7)	5.445 0.142
	1-2 times/week	100 (38.2)	61 (61.0)	39 (39.0)		49 (49.0)	51 (51.0)		44 (44.0)	56 (56.0)	
	2-5 times/week	14 (5.3)	10 (71.4)	4 (28.6)		7 (50.0)	7 (50.0)		6 (42.9)	8 (57.1)	
	7 days/week	4 (1.5)	2 (50.0)	2 (50.0)		1 (25.0)	3 (75.0)		0 (0.0)	4 (100.0)	
Time spent on your hobby	None	86 (32.8)	60 (69.8)	26 (30.2)	19.863 < 0.01	51 (59.3)	35 (40.7)	19.624 < 0.01	27 (31.4)	59 (68.6)	12.274 < 0.01
	Upto 1 hour	118 (45.0)	90 (76.3)	28 (23.7)		58 (49.2)	60 (50.8)		46 (39.0)	72 (61.0)	
	1-3 hours	33 (12.6)	25 (75.8)	8 (24.2)		8 (24.2)	25 (75.8)		20 (60.6)	13 (39.4)	
	> 3 hours	25 (9.6)	8 (32.0)	17 (68.0)		5 (20.0)	20 (80.0)		5 (20.0)	20 (80.0)	
Physical exercise	No	139 (53.1)	101 (72.7)	38 (27.3)	5.052 0.168	80 (57.6)	59 (42.4)	14.517 < 0.01	51 (36.7)	88 (63.3)	0.580 0.901
	Upto 1 hour	104 (39.7)	72 (69.2)	32 (30.8)		36 (34.6)	68 (65.4)		41 (39.4)	63 (60.6)	
	1-3 hours	15 (5.7)	9 (50.0)	6 (40.0)		5 (33.3)	10 (66.7)		5 (33.3)	10 (66.7)	
	> 3 hours	4 (1.5)	1 (25.0)	3 (75.0)		1 (25.0)	3 (75.0)		1 (25.0)	3 (75.0)	
Playing outdoor games	No	189 (72.1)	145 (76.7)	44 (23.3)	31.759 < 0.01	93 (49.2)	96 (50.8)	6.730 0.08	74 (39.2)	115 (60.8)	6.241 0.100
	Upto 1 hour	53 (20.2)	34 (64.2)	19 (35.8)		25 (47.2)	28 (52.8)		15 (28.3)	38 (71.7)	
	1-3 hours	11 (4.2)	4 (36.4)	7 (63.6)		3 (27.3)	8 (72.7)		7 (63.6)	4 (36.4)	
	> 3 hours	9 (3.5)	0 (0.0)	9 (100.0)		1 (11.1)	8 (88.9)		2 (22.2)	7 (77.8)	
Aggravation of pre-existing illness	Yes	39 (14.9)	27 (69.2)	12 (30.8)	0.008 0.928	23 (59.0)	16 (41.0)	2.836 0.092	11 (28.2)	28 (71.8)	1.656 0.198
	No	223 (85.1)	156 (70.0)	67 (30.0)		99 (44.4)	124 (55.6)		87 (39.0)	136 (61.0)	
Weight gain	Yes	121 (46.2)	78 (64.5)	43 (35.5)	3.095 0.079	52 (43.0)	69 (57.0)	1.164 0.281	46 (38.0)	75 (62.0)	0.036 0.850

	No	141 (53.8)	105 (74.5)	36 (25.5)		70 (49.6)	71 (50.4)		52 (36.9)	89 (63.1)	
Increased episodes of sickness	Yes	37 (14.1)	18 (48.6)	19 (51.4)	9.193 < 0.01	18 (48.6)	19 (51.4)	0.075 0.784	10 (27.0)	27 (73.0)	1.982 0.159
	No	225 (85.9)	165 (73.3)	60 (26.7)		104 (46.2)	121 (53.8)		88 (39.1)	137 (60.9)	

IV. Discussion

In this cross-sectional study, we compared the physical health and psychosocial behavior of adolescents during and post pandemic time. Throughout the COVID-19 lockdowns, young people encountered heightened psychosocial challenges such as anxiety, depression, and social isolation, further worsened by decreased physical activity and changes in their daily routines. After the lockdowns, several studies observed either a persistence or a transition of these challenges, revealing ongoing effects on mental health and highlighting the necessity for sustained support and interventions to mitigate the long-term consequences of the pandemic on the well-being of adolescents [6,7]. In our study among psychosocial issues adolescents faced problems of feeling sad/ hopelessness, restless/ over activeness and disturbed sleep more during lockdown period indicating increased incidence of depression and anxiety in them. Similar results were presented by Anand et al (2024) [8] in Pune reporting that children displayed decreased empathy towards others, restlessness, fidgetiness, reduced attention span, frequent tantrums, and a preference for solitary activities during lockdown which also continued post lockdown. Also, our findings align with the results of several previous longitudinal studies, which found higher levels of depression and anxiety among adolescents amid the pandemic [9,10,11,12]. In the present study when changes in physical activities was assessed during and post lockdown it was observed that watching of television/ video games, increased during lockdown whereas intake of junk food items significantly increased after lockdown. Also, activities like involvement in physical activities and outdoor games significantly decreased during COVID lockdown which in turn lead to significant increased weight gain. Similar findings were observed by Thapar et al (20234) in Chandigarh [13] showing that proportion of adolescents performing adequate physical activity decreased from 33.9% to 30.7% during the pandemic while junk food intake decreased by 17% during the pandemic. When comparison was done on basis of gender female participants were found to be more effected mentally and physically and these findings were consistent with the results of Anand et al (2024) [8] in which females were considerably more affected emotionally that males.

V. Conclusion

Our research finds out the substantial effect of the pandemic on the psychological and physical well-being of numerous children. The findings stress the importance of implementing targeted initiatives to tackle the mental and physical health challenges that have emerged within this demographic. The evident differences in emotional and behavioral issues among girls are especially alarming, underscoring the demand for gender-sensitive care and support. Adolescents have very special and distinct needs, which can no longer be overlooked. It is essential to invest in adolescent, as they are the future of the country. Children were extremely disheartened with abrupt stoppage of schooling, cancellation of scheduled trips, home-confinement and fear of uncertainty concerning the ongoing pandemic. Counselling and preparedness of parents and children should be done for future pandemics/ natural calamities in order to strengthen physical, mental and psychosocial health.

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