Migration Letters

Volume: 21, No: 3, pp. 962-977

ISSN: 1741-8984 (Print) ISSN: 1741-8992 (Online)
www.migrationletters.com

Mental Health Effects on Adolescents due to Limited Social Interaction

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Abstract

Social interaction is a fundamental human need, crucial for mental well-being and emotional development. Adolescence, a period marked by increased sensitivity to peer influence, is particularly affected by social interactions. We proposed a retrospective cross-sectional design employing adolescents aged 16-18 using a structured questionnaire comprising 38 items.The questionnaire covered demographics, anxiety, depression, stress, emotional regulation, daily life effects, and media exposure. Data analysis involved descriptive statistics, Pearson correlation coefficients and independent sample t-tests using SPSS software. Our study found that anxiety levels stood at 41%, depression at 37%, and stress at 91% among adolescents during the period of denied social interaction. Participants who engaged in cognitive reappraisal and expressive suppression had higher emotional regulation scores. We found a correlation among anxiety, depression, stress and emotional regulation. It also revealed significant hindrances in social interactions, education, and extracurricular activities, all vital for adolescent mental health. Mental health in adolescents is just as vital as their physical health in shaping them into self-assured, independent adults. This study highlights the adverse consequences of DSI on adolescent mental well-being and underscores the importance of addressing these issues in future public health planning.

Highlights

- *The research showed a significant rise in mental health issues among adolescents during limited social Interaction.*
- *Based on our study, anxiety, depression, and stress increased in adolescents during the period of denied social interaction.*
- *Insufficient social interaction, encompassing issues in mingling with friends and attending school, correlated with elevated depression, anxiety, and stress rates in adolescents thus social connections are vital for sustaining mental well-being.*
- *A significant portion of adolescents engaged in emotional regulation techniques. These techniques were associated with their ability to manage and express emotions.*
- *It emphasizes the need for supportive measures and responsible media usage to mitigate the adverse effects of social isolation on the mental well-being of young individuals.*

Keywords: *Mental Health, Social interaction, Adolescents, Denied Social Interaction, Anxiety, Depression, Stress, Emotional regulation, Media effects.*

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Introduction

Social interaction is a basic human need required in everybody's life. It is to communicate and collaborate with different members of the social circle. It not only fosters mental well-being but also enables individuals to share their thoughts and feelings with others and vice versa(Quoidbach.J., et al.,2020). Adolescence, (spanning from ages 10 to 24) is a life stage marked by heightened sensitivity to social stimuli and an increased need for peer interaction. During this period, the significance of gaining social approval from peers becomes more pronounced, and the impact of peer influence is magnified (Orben .A et al., 2020).

The recent pandemic has adversely affected both physical and mental health, particularly among adolescents who have experienced DSI. Concerns are mounting over its impact on the mental well-being of vulnerable children and young individuals(Theberath. M et al., 2022).

Previous research has demonstrated that adolescents faced an elevated risk of experiencing mental health challenges during the pandemic. A study carried out in China has indicated that in the initial phases of the COVID-19 outbreak, symptoms of depression and anxiety were notably widespread among adolescents in China. Interestingly, the prevalence of these mental health concerns surged significantly approximately six weeks later, despite improvements in the control of the outbreak. This suggests that the psychological impact of the pandemic on adolescents persisted and potentially intensified over time. (Chin. X et al. 2021)

In another study, adolescents noticed several changes in their relationships with family and friends during the pandemic period. For instance, they felt they had less support from their friends. Additionally, they reported experiencing more negative emotions and fewer positive emotions. These shifts in their lives were linked with increased symptoms of depression, anxiety, and feelings of loneliness. Importantly, these associations held true even when considering the adolescents' mental health status before the pandemic, indicating the substantial impact of these changes. (Rogers. AA et al, 2021)

According to [Kauhanen et al. 2023], 5 systematic reviews have been published on the mental health of children and adolescents, four in 2021 and one in 2020.

They propose that the majority of the studies conducted during these years were either cross-sectional in nature or focused on specific clinical subgroups.

This makes it difficult to distinguish the mental well-being changes in children and adolescents before and during the pandemic.

Emerging research strongly suggests that the worldwide incidence of mental health problems among children and adolescents has experienced a substantial increase during the pandemic.(Racine.N. Et al., 2021). However, it is crucial to note that there is significant variation in the prevalence rates of various reported studies in pre-existing literature.

The present study plays a vital role in addressing this discrepancy by providing a more comprehensive and nuanced knowledge of how the mental health of adolescents has been affected by DSI during the pandemic. Understanding how periods of social distancing, like the one studied here (DSI), affect the mental well-being of adolescents. The results obtained by this study can provide more valuable insights to prepare for and respond to new future pandemics or environmental issues which could impair adolescents mental health.

Objective

As previously mentioned, the mental health of individuals has been significantly impacted by DSI. However, there is a limited amount of research conducted on this

specific topic. Through this study, we wish to assess the effects of limited social interaction on adolescents' well-being and mental health.

1.The primary objective is to determine the prevalence of three key aspects

- Anxiety
- Depression
- Stress

2. To understand the emotional changes in adolescents

3. To evaluate the effects of DSI on the daily lives of adolescents

4. To find the extent to which media has impacted adolescent's views and thoughts

Materials and Methods

Study design

A retrospective cross-sectional design was used to assess the effects of DSI on the mental health of adolescents. The target population was young people aged 16-18. Between July 2022 to January 2023, an online survey was distributed through social media platforms to recruit participants from different schools from one of the emirates of UAE.

Inclusion criteria include (1) the age range of 16-18 years, (2) the student's willingness to participate (3) the ability to read in English, and (4) participants that underwent a period of DSI. Exclusion criteria include (1) adolescents having any pre-existing medical conditions.

A structured questionnaire of 38 questions was sent through an online survey after gaining their consent. The collected information was summarized using descriptive statistics.

A total of 200 students were surveyed and their responses were analyzed. By applying a margin error of 5%, the confidence interval was 95% for the estimated total number.

The study was approved by Rakmhsu Research Committee (MOHAP) bearing the approval number of: 14-2023-UG-M

Study Material

Data Collection

A structured questionnaire comprising 38 items was employed for data collection. These questions were categorized into five distinct domains: 1: Demographics, 2:Assessment of anxiety, depression, and stress levels, utilizing established questionnaires such as the Generalized Anxiety Disorder-2 (GAD-2), Patient Health Questionnaire-2 (PHQ-2), and Perceived Stress Scale-10 (PSS-10), 3: Exploration of emotional changes, 4:Evaluation of the impact of Denied Social Interaction (DSI) on daily routines. 5: Examination of the effects of media exposure. To ensure clarity and consistency, a finalized version of the questionnaire underwent a random pilot test with ten individuals. Responding to the questionnaire typically required approximately ten to twelve minutes.

Demographics

Information was collected on the participant's age, gender, nationality curriculum, and school name.

Levels Of Anxiety

To assess anxiety among young individuals, the Generalized Anxiety Disorder Scale (GAD-2) was employed. This self-reported scale consists of two validated items.

Participants were asked to report the frequency with which they experienced symptoms related to feeling nervous and not able to stop worrying. They had response choices of "not at all," "several days," "more than half the days," and "nearly every day," which were scored as 0, 1, 2, and 3, respectively. A cutoff score of 3 was used to identify the presence of anxiety symptoms.(Villanti AC et al.2022)

Levels of depression

To assess depression among young individuals, the Patient Health Questionnaire-2 (PHQ-2) was employed. This self-reported scale consists of two validated items designed to measure depressive symptoms. Participants indicated how often they were bothered by symptoms of little interest in doing things, and feeling down & depressed. Response options were “not at all,” “several days,” “more than half the days,” and “nearly every day,” scored as 0, 1, 2, and 3. (Villanti AC et al.2022)

Additional questions that were asked were about trouble falling or staying asleep, feeling tired, poor appetite, feeling discouraged about the future, and feeling there is nothing to look forward to. Response options were “not at all,” “several days,” “more than half the days,” and “nearly every day,” scored as 0, 1, 2, and 3. (Wang. S et al 2022)

Levels of stress

To asses stress levels among young individuals, the Perceived Stress Scale (PSS-10) was utilized. This self-reported scale comprises ten validated items designed to assess perceived stress. Participants indicated how often they were bothered by symptoms of being upset because of something that happened unexpectedly, being unable to control the important things in life, feeling nervous and stressed, feeling confident about their ability to handle personal problems, feeling that things were going their way, found that they could not cope with all the things, able to control irritations in their life, felt that they were on top of things, been angered because of things that happened that were outside of their control, felt difficulties were piling up so high that they could not overcome them. Response options were “Never,” “Almost Never,” “Sometimes,” “Fairly Often,” and “ Very Often” scored as 0,1,2,3 and 4. The scoring categories for the Perceived Stress Scale (PSS-10) are as follows: 1: Scores between 0 and 13 are classified as indicating low stress. 2: Scores falling within the range of 14 to 26 are categorized as moderate stress. 3: Scores in the range of 27 to 40 are considered to reflect high perceived stress.(Rosario S et al. 2020)

Emotional Regulation

Emotional changes were assessed using a 7-point Likert scale to assess cognitive reappraisal and expressive suppression. Participants indicated how often when they feel positive emotions they change what they think, keep emotions to themselves, they change what they think to feel less negative emotions, when they feel positive emotions they are careful not to express them, they control emotions by not expressing them, control emotions by changing the way they think about the situation. Responses options were “strongly disagree”, “moderately disagree”, “mildly disagree”, “neutral”,” mildly agree”, “moderately agree”, and “strongly agree” scored as 0,1,2,3,4,5,6 and 7. (Gross JJ, John OP. 2003)

Effects on daily life

The effects on daily life due to DSI were assessed using a 3-point Likert scale. Participants indicated how often they were affected by being unable to see their friends, when a friend or family gets very ill from a communicable disease, not participating in extracurricular activities, unable to attend social events, being unable to travel, effect on education, being unable to go to school, getting sick from communicable disease. Response options were “not at all affected”, “somewhat affected”, and “definitely affected” scored as 1,2, and 3. (Solmi. M et al. 2022)

Media Effects

Participants were asked which social media platform they used the most to find information about any communicable disease. The options included Facebook, Instagram, YouTube, TikTok, Linkedin, WhatsApp, Telegram, and Skype. They were inquired about whether increased dissemination of news regarding communicable diseases through social media contributes to the propagation of fear and distress among the public. They were also asked if they themselves had shared any information or news concerning communicable diseases on social media, and whether they believed that implementing filters on social media and adhering to a particular policy during humanitarian crises would be beneficial.

Data Analysis

Pearson correlation coefficient ("r") and independent sample t-test were used to find the relation b/n the cumulative scores of anxiety due to limited social interaction, effects of communicable diseases on limited social interaction, patient health questionnaire (PHQ) for depression, emotional regulation, and perceived stress scale. The p-value < 0.05 was considered as significant. Data analysis was performed by using the SPSS software (Inc.; Chicago, IL), version 26. The gathered data was condensed and presented using descriptive statistics, including metrics like frequency, percentage, mean, and standard deviation (SD).

Results

In total, 106 adolescent populations completed the online survey after consent. The Demographics of the 106 are shown in Table 1.

Table 1: Demographics			
(n = 106)		Frequency	%
Age	Less than 15	4	3.8
	16	10	9.4
	17	10	9.4
	18	48	45.3
	Above 18	34	32.1
Gender	Male	51	48.1
	Female	55	51.9
Curriculum	American	5	4.8
	BBA	1	1
	British	3	2.9
	CBSE	84	80.8

	College Board	1	1
	Deemed- Private	1	1
	FBISE	2	1.9
	Federal bored Pakistan	1	1
	IB	1	1
	ICSE	1	1
	International Baccalaureate	1	1
	MBBS	1	1
	MD	1	1
	Sabis/American	1	1
Nationality	American	1	0.9
	Egyptian	1	0.9
	Indian	94	88.7
	Iraqi	2	1.9
	Kenyan	1	0.9
	Lebanon	1	0.9
	Pakistani	6	5.7

The gender distribution among participants was nearly balanced, with females accounting for 51.9% and males comprising 48.1%, 45.3% being 18 years of age with CBSE being the most commonly reported curriculum. The majority of participants (88.7%) were identified as Indians.

Anxiety levels (GAD-2)

Among the entire group of participants, 5.7% of them felt nervous, anxious, or on the edge nearly every day, while just 7.5% had trouble controlling or stopping worrying nearly every day. (Table 2)

Table 2: Prevalence of Anxiety due to limited social interaction

(n = 106)	Not at all		Several days		More than half the days		Nearly everyday	
	n	%	n	%	n	%	n	%
1: Feeling nervous, anxious or on the edge	14	13.2	59	55.7	27	25.5	6	5.7
2: Not being able to stop or control worrying	16	15.1	51	48.1	31	29.2	8	7.5

Almost 41% of our adolescent population reported anxiety. When we classify anxiety using the GAD-2, higher levels of female participants identified with anxious behavior (45% vs. 37%) including participants aged 18 and older (34%) with a cutoff score of 3.

Depressive Levels (PHQ-2)

During the period of DSI, students who felt little interest or not having pleasure in doing things and felt down, depressed, or hopeless nearly every day was only 4.7% as shown in table 3.

Table 3: Prevalence of Depression due to limited social interaction

(n = 106)	Not at all		Several days		More than half the days		Nearly everyday	
	n	%	n	%	n	%	n	%
1:Little interest or pleasure in doing things	24	22.6	52	49.1	25	23.6	5	4.7
2: Feeling down, depressed, or hopeless	25	23.6	52	49.1	24	22.6	5	4.7

When employing the PHQ-2 with a cutoff of 3, 37% of the surveyed individuals indicated signs of depression. When examining the ratio of males to females, a greater percentage (45% vs. 30%) of the male population exhibited depressive symptoms.

Table 4: Additional questions relating to depressive symptoms

(n = 106)	Not at all		Several days		More than half the days		Nearly everyday	
	n	%	n	%	n	%	n	%
1. Trouble falling or staying asleep, or sleeping too much	30	28.3	50	47.2	22	20.8	4	3.8
2. Feeling tired or having little energy	28	26.4	46	43.4	25	23.6	7	6.6
3. Poor appetite or overeating	29	27.4	45	42.5	22	20.8	10	9.4
4. Feel discouraged about the future	17	16	45	42.5	34	32.1	10	9.4
5. Feel there is nothing to look forward to	19	17.9	45	42.5	34	32.1	8	7.5

Nearly half (47%) of the participants had experienced trouble falling or staying asleep, or sleeping too much for several days. Feeling tired or having little energy was experienced by 43% of the participants on several days. Amongst the study population aged below 18, 58% (24n) displayed depressive symptoms.

Stress Levels (PSS-10)

Adolescents who felt nervous and stressed very often was 13.2%, whereas those who felt that they were unable to control the important things in their life was 9.4%. A smaller percentage, just 3.8% of participants felt that they could not cope with all the things that they had to do as shown in Table 5.

Table 5: Prevalence of stress due to limited social interaction

(n = 106)	Never		Almost never		Sometimes		Fairly often		Very often	
	n	%	n	%	n	%	n	%	n	%
1. In the last few month, how often have you been upset because of something that happened unexpectedly?	14	13	44	41.5	21	19.8	23	21.7	4	3.8
2. In the last few month, how often have you felt that you were unable to control the important things in your life?	8	7.5	51	48.1	18	17	19	17.9	10	9.4
3. In the last few month, how often have you felt nervous and “stressed”?	7	6.6	37	34.9	32	30.2	16	15.1	14	13.2
4. In the last few month, how often have you felt confident about your ability to handle your personal problems?	2	1.9	24	22.6	36	34	41	38.7	3	2.8
5. In the last few month, how often have you felt that things were going your way?	5	4.7	27	25.5	27	25.5	44	41.5	3	2.8
6. In the last few month, how often have you found that you could not cope with all the things that you had to do?	7	6.6	39	36.8	34	32.1	22	20.8	4	3.8
7. In the last few month, how often have you been able to control irritations in your life?	4	3.8	26	24.5	46	43.4	28	26.4	2	1.9
8. In the last few month, how often have you felt that you were on top of things?	4	3.8	23	21.7	36	34	40	37.7	3	2.8
9. In the last few month, how often have you been angered because of things that were	7	6.6	48	45.3	23	21.7	23	21.7	5	4.7

outside of your control?										
10. In the last few month, how often have you felt difficulties were piling up so high that you could not overcome them?	6	5.7	42	39.6	30	28.3	18	17	10	9.4

The vast majority of individuals (91%) experienced feelings of stress during the DSI period. When we classified stress into high and low categories using the PSS-10, over half of the participants (83%) indicated a moderate level of stress. A smaller portion (8%) of the population reported higher stress levels and 9% reported low levels of stress. For all participants, the percentage of males with moderate stress (84%) closely matched that of females (81%). Among adolescents aged 18 and above, more than four-fifths (81%) encountered moderate stress.

Regulating and managing emotional experiences

Emotional regulation techniques were employed to evaluate cognitive reappraisal and expressive suppression.

Cognitive Reappraisal

Only a small percentage of participants, specifically 5.7%, strongly agree that they change what they are thinking about when they feel either positive or negative emotions. Additionally, 4.7% strongly agree that they keep control of their emotions by changing what they think about a particular situation.

Table 6: Cognitive reappraisal strategies for emotional regulation

(n = 106)	Strongly disagree		Moderately disagree		Mildly disagree		Neutral		Mildly agree		Moderately agree		Strongly agree	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1. When i want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about.	6	5.7	10	9.4	25	23.6	15	14	31	29	13	12.3	6	5.7
2. When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking	5	4.7	6	5.7	22	20.8	23	22	29	27	15	14.2	6	5.7

about.														
3. I control my emotions by changing the way I think about the situation I'm in.	3	2.8	7	6.6	15	14.2	34	32	25	24	17	16	5	4.7

Expressive suppression

From Table 7, 13.2% of the participants strongly believed that they should keep their emotions to themselves. In contrast, only 5.7% of participants strongly agreed with the idea that they control their emotions by not expressing them.

Table 7: Expressive suppression strategies for emotional regulation

(n = 106)	Strongly disagree		Moderately disagree		Mildly disagree		Neutral		Mildly agree		Moderately agree		Strongly agree	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1. I keep my emotions to myself.	3	2.8	9	8.5	30	28.3	21	20	16	15	13	12.3	14	13.2
2. When I am feeling positive emotions, I am careful not to express them.	4	3.8	15	14.2	20	18.9	27	26	27	26	10	9.4	3	2.8
3. I control my emotions by not expressing them.	4	3.8	14	13.2	21	19.8	27	26	24	23	10	9.4	6	5.7

Individuals who achieved high scores in a specific emotional regulation technique were more likely to utilize that approach. Participants' responses were scored on a 7-point Likert scale, spanning from 1 (strongly disagree) to 7 (strongly agree). When interpreting raw data, the results indicated that 63% employed cognitive reappraisal, while 54% employed expressive suppression with a high score of 4 and above.

Effects of DSI on Daily Lives

From the table, it becomes evident that 51.9% of the participants were "somewhat" not able to see their friends. Around half (50%) faced a similar level of challenge in engaging in extracurricular activities and 49.1% encountered a comparable hurdle in attending school. There was a significant impact on education for 25% of the adolescents.

Table 8: Effects of communicable diseases on Daily lives

(n = 106)	Not at all affected		Somewhat affected		Definitely affected	
	n	%	n	%	n	%
1:You were not able to see your friends	38	35.8	55	51.9	13	12.3
2:Your friend or family getting very ill from a communicable diseases	22	20.8	49	46.2	35	33
3:You were not participating in extracurricular activity	36	34	53	50	17	16
4:You were not able to attend social events	44	41.5	49	46.2	13	12.3
5:You were not able to travel	44	41.5	45	42.5	17	16
6: Effect on your education	27	25.5	52	49.1	27	25.5
7:You were not able to go to school	31	29.2	56	52.8	19	17.9
8:You getting very sick from a communicable diseases	29	27.4	46	43.4	31	29.2

Effects of media due to DSI

The top two platforms frequently utilized for obtaining information about communicable diseases were Instagram (37.7%) and TikTok (21.7%) as seen in Table 9.

Table 9: Social media platforms

(n = 106)		Frequency	%
Question 1: Which social media platform do you use to get news and information about communicable diseases?	Face book	14	13.2
	Google	1	0.9
	Instagram	40	37.7
	Mix of all	1	0.9
	News websites, sometimes may be YouTube as well.	1	0.9
	Television	1	0.9
	THE HINDU	1	0.9
	TikTok	23	21.7
	WhatsApp	7	6.6
	YouTube	17	16

Among all the participants, 72.6% of students believed that sharing news about communicable diseases tends to induce panic in people. A consensus of 63.2% was reached on the need for implementing filters on social media platforms during times of humanitarian crises.

Table 10: Media Effects

(n = 106)	Yes		No		Neutral	
	n	%	n	%	n	%
Question 2: Do you think that publishing more news related to communicable diseases on social media has spread fear and panic among the people?	77	72.6	18	17	11	10.4
Question 3: Have you published any information and news related to communicable diseases on social media?	37	34.9	64	60.4	5	4.7
Question 4: Filters need to be set up for social media and a specific policy followed during humanitarian crises such as the spread of a influenza?	67	63.2	20	18.9	19	17.9

Pearson correlation coefficient between the cumulative scores

Pearson correlation analysis showed a positive association between the different parameters assessed. Participants who were anxious during DSI were more prone to develop depression and stress. Similarly, students who had limited social interaction were more prone to develop depression, stress, and low emotional regulation. Adolescents who had low emotional regulation develop stress.

Table 11: Pearson correlation between different domains

Domain 1	Domain 2	Pearson's correlation r value	P value
Anxiety	Depression	0.603	<0.001*
Anxiety	Emotional Regulation	0.194	<0.047*
Anxiety	Stress	0.497	<0.001*
Limited Social Interaction	Depression	0.390	<0.001*
Limited Social Interaction	Emotional Regulation	0.248	<0.010*
Limited Social Interaction	Stress	0.376	<0.001*
Emotional regulation	Stress	0.523	<0.001*

Discussions

In this study, we employed the GAD-2 and PHQ-2 as initial screening tools to identify generalized anxiety and depressive disorders, respectively. These tools are effective for detecting the presence of these disorders. For a more precise diagnosis, additional assessments such as the GAD-7 and PHQ-9 can be utilized to narrow down the range of diagnoses. However, as this study was testing many different parameters, initial screening tests were enough. Based on our findings, we observed that anxiety levels among adolescents during the period of DSI stood at 41%, while depression levels were at 37%. These surveys were conducted in mid-2022, a time when social interaction was slowly starting to increase again. Therefore, our data suggest that DSI has had a notable impact on anxiety and depression levels among adolescents, and its effects may persist over the long term.

In comparison to a study involving Vermont adolescents (Villanti, A. C., et al 2022), their findings show a trend of increased anxiety symptoms, measured by GAD-2, rising from 24.3% to 28.4%. Additionally, depressive symptoms, assessed with PHQ-2, increased from 13.7% to 18.5% following the onset of COVID-19. Moreover, a meta-analysis conducted by Racine et al. (2021), which encompassed 29 studies involving 80,879 youth, reported that 25.2% (95% CI, 21.2%-29.7%) of adolescents are now experiencing clinically elevated depression symptoms, while 20.5% (95% CI, 17.2%-24.4%) are grappling with clinically elevated anxiety symptoms. These findings suggest a probable doubling of mental health challenges among young people during the pandemic. Another study carried out in India Verma and Mishra (2020) revealed that 25% of participants exhibited moderate to extremely severe depression, 28% reported anxiety, and 11.6% experienced stress. Collectively, these results underscore the substantial impact of the pandemic on the mental well-being of young individuals across diverse global contexts.

In this study, it was also discovered that stress is highly prevalent, with an overall percentage of 91%. Specifically, 83% of the participants experienced moderate levels of stress. Findings from another research revealed that, on average, participants scored 17.4 (6.4) on the PSS-10 stress scale. Their results indicated that women, young individuals, and students scored particularly high on this measure of stress.(Rosario S et al. 2020)

Previous other research have reported that Children and adolescents have encountered a range of stress-inducing circumstances during the COVID-19 pandemic. These include concerns about getting sick, feelings of frustration and boredom, coping with an overload of information, dealing with financial strain within families, and adapting to significant changes in their daily routines, not able to perform academic activities ,procrastinate academic activities. These multiple stressors underscore the complex challenges posed by COVID-19 to the mental well-being of young people.(Ahmed I et al.,2023& K Brooks et al., 2020).

In our present study, we found that various factors like emotional regulation, effects on daily lives, and media effects have been linked to the higher occurrence of depression, anxiety, and stress as shown in table 11. Our study highlights the difficulties faced by adolescents during the period of DSI. More than half of the adolescents had difficulty socializing with friends (51.9%), attending school (52%), and participating in extracurricular activities (50%). It's important to emphasize that these interactions are vital in promoting positive mental health and preventing its decline in adolescents.

The emotional regulation findings showed that participants were able to hide their negative emotions in order to alter their emotional experience and decrease outward expression of emotions which may impair their positive psychosocial behavior. It is crucial to stress the importance of implementing measures for preventing and addressing psychological challenges during crises. As previously indicated by other researchers, our study reinforces the importance of policymakers recognizing the potential risks associated

with social isolation and the benefits of in-person interactions for youth during pandemics. This recognition is vital because restricted peer interactions and feelings of loneliness have a substantial impact on the mental health challenges faced by young individuals during such crises. Caregivers should take proactive measures to facilitate safe virtual social interactions, as this can aid adolescents in maintaining and cultivating social connections, thereby mitigating the effects of social isolation and loneliness during periods of denied social interaction.(Branje S et al., 2021).

To mitigate the adverse effects of social distancing measures, young individuals increased their online activity. (Islam, M. S et al .,2020). However, it's important to note that the information about communicable diseases obtained from social media varies in reliability. It is essential to recognize that not all online interactions during the pandemic were negative. A meta-analysis and systematic review of Digital Media Use and Adolescents' Mental Health During the COVID-19 pandemic revealed that not every form of digital media usage resulted in adverse outcomes. Their findings suggested that social media usage had the potential to mitigate feelings of loneliness during the COVID-19 pandemic. However, this positive effect was more prominent when individuals engaged in one-on-one or small-group communication on social media platforms, as opposed to general or widespread social media use. (Marciano. L et al., 2022). However, a slightly different opinion was obtained from our result which is that more than half of adolescents (72.6%) have expressed concerns that overly detailed and negative information about these diseases has fueled fear and panic among the public.

Conclusion

Overall the results of our study indicate that DSI resulting from lockdown during the pandemic period has adversely impacted the mental well-being of adolescents. The study highlights a higher prevalence of anxiety (41%), depression (37%), and stress (91%), accompanied by a decrease in positive emotional development. Additionally, two-thirds of students acknowledged that social media can affect one's emotional state, suggesting a need for filters on such platforms. It's well-established that social interaction contributes positively to emotional and physical well-being, offering a buffer against the harmful effects of stress and anxiety. However, it's important to note that most studies in this area were conducted during the pandemic itself, whereas our study took place post-pandemic, potentially influencing the responses. To strengthen the findings of this study a larger and more demographically diverse population can be used. Furthermore, it's crucial to conduct studies assessing the long-term effects of periods when social interaction was restricted, as mental health in adolescents is just as vital as their physical health in shaping them into self-assured, independent adults.

References

Ahmed I., Bernhardt GV., Shivappa P. (2023). Prevalence of academic procrastination and its negative impact on students. Biomed Biotechnol Res ,7:363-70.

Branje, S., & Morris, A. S. (2021). The Impact of the COVID-19 Pandemic on Adolescent Emotional, Social, and Academic Adjustment. Journal of Research on Adolescence, 31(3), 486-499. doi: 10.1111/jora.12668.

Brooks, K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. The Lancet, 395(10227), 912-920. doi: 10.1016/S0140-6736(20)30460-8.

Chen, X., Qi, H., Liu, R., Feng, Y., Li, W., Xiang, M., ... Xiang, Y. T. (2021). Depression, anxiety and associated factors among Chinese adolescents during the COVID-19 outbreak: A comparison of two cross-sectional studies. Translational Psychiatry, 11, 148. https://doi.org/10.1038/s41398-021-01271-4

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A Global Measure of Perceived Stress. Journal of Health and Social Behavior, 24(4), 385–396. https://doi.org/10.2307/2136404

Gamonal-Limcaoco, S., Montero Mateos, E., Fernandez, J. M., & Roncero, C. (April 2020). Anxiety, worry, and perceived stress in the world due to the COVID-19 pandemic, March 2020: Preliminary results. doi:10.1101/2020.04.03.20043992

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. Journal of Personality and Social Psychology, 85(2), 348-362. doi: 10.1037/0022-3514.85.2.348.

Islam, M. S., Sujan, M. S. H., Tasnim, R., Ferdous, M. Z., Masud, J. H. B., Kundu, S.,. Griffiths, M. D. (2020). Problematic internet use among the young and adult population in Bangladesh: Correlates with lifestyle and online activities during the COVID-19 pandemic. Addictive Behaviors Reports, 12, 100311. doi: 10.1016/j.abrep.2020.100311.

Kauhanen, L., Wan Mohd Yunus, W. M. A., Lempinen, L., Peltonen, K., Gyllenberg, D., Mishina, K., ... Sourander, A. (2023). A systematic review of the mental health changes of children and young people before and during the COVID-19 pandemic. European Child & Adolescent Psychiatry, 32(6), 995-1013. doi:10.1007/s00787-022-02060-0

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2003). The Patient Health Questionnaire-2: Validity of a Two-Item Depression Screener. Medical Care, 41, 1284-1292.

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. Journal of General Internal Medicine, 16(9), 606-613. doi: 10.1046/j.1525-1497.2001.016009606.x.

Kroenke, K., Spitzer, R. L., Williams, J. B., Monahan, P. O., & Löwe, B. (2007). Anxiety disorders in primary care: Prevalence, impairment, comorbidity, and detection. Annals of Internal Medicine, 146, 317-325.

Marciano, L., Ostroumova, M., Schulz, P. J., & Camerini, A. L. (2022). Digital Media Use and Adolescents' Mental Health During the Covid-19 Pandemic: A Systematic Review and Meta-Analysis. Frontiers in Public Health, 9, 793868. doi: 10.3389/fpubh.2021.793868.

Orben, A., Tomova, L., & Blakemore, S. J. (2020). The effects of social deprivation on adolescent development and mental health. Lancet Child Adolesc Health, 4(8), 634-640. doi:10.1016/S2352-4642(20)30186-3

Quoidbach, J., Berry, E. V., Hansenne, M., & Mikolajczak, M. (2010). Positive emotion regulation and well-being: Comparing the impact of eight savoring and dampening strategies. Personality and Individual Differences, 49(5), 368–373. https://doi.org/10.1016/j.paid.2010.03.048

Racine, N., McArthur, B. A., Cooke, J. E., Eirich, R., Zhu, J., & Madigan, S. (2021). Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents During COVID-19: A Meta-analysis. JAMA Pediatrics, 175(11), 1142-1150. doi: 10.1001/jamapediatrics.2021.2482.

Rogers, A. A., Ha, T., & Ockey, S. (2021). Adolescents' perceived socio-emotional impact of COVID-19 and implications for mental health: Results from a U.S.-based mixed-methods study. Journal of Adolescent Health, 68(1), 43-52. doi:10.1016/j.jadohealth.2020.09.039

Solmi, M., Estradé, A., Thompson, T., Agorastos, A., Radua, J., Cortese, S., ... Correll, C. U. (2022). Physical and mental health impact of COVID-19 on children, adolescents, and their families: The Collaborative Outcomes study on Health and Functioning during Infection Times - Children and Adolescents (COH-FIT-C&A). Journal of Affective Disorders, 299, 367-376. doi: 10.1016/j.jad.2021.09.090.

Theberath, M., Bauer, D., Chen, W., Salinas, M., Mohabbat, A. B., Yang, J.,… Wahner-Roedler, D. L. (2022). Effects of COVID-19 pandemic on the mental health of children and adolescents: A systematic review of survey studies. SAGE Open Medicine, 10, 20503121221086712. doi:10.1177/20503121221086712

Verma, S., & Mishra, A. (2020). Depression, anxiety, and stress and socio-demographic correlates among the general Indian public during COVID-19. International Journal of Social Psychiatry, 66(8), 756-762. doi:10.1177/0020764020934508

Villanti, A. C., LePine, S. E., Peasley-Miklus, C., West, J. C., Roemhildt, M., Williams, R., & Copeland, W. E. (2022). COVID-related distress, mental health, and substance use in adolescents and young adults. Child and Adolescent Mental Health, 27(2), 138-145. doi: 10.1111/camh.12550.

Wang, S., Chen, L., Ran, H., Che, Y., Fang, D., Sun, H., Peng, J., Liang, X., & Xiao, Y. (2022). Depression and anxiety among children and adolescents pre and post COVID-19: A comparative meta-analysis. Frontiers in Psychiatry, Volume 13(Sec. Public Mental Health). https://doi.org/10.3389/fpsyt.2022.917552