A Review of the Impact of COVID-19 on Symptoms of Social Anxiety in Adolescents

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Abstract

This review explores the impact the COVID-19 pandemic had psychologically on adolescents, particularly regarding social anxiety. Overall, due to the pandemic, adolescent social anxiety has increased, though it decreased in those already diagnosed with social anxiety over lockdown. In these individuals, symptoms of social anxiety increased substantially when life reverted back to normal in late 2021/early 2022. Predominantly, an increase in symptoms of social anxiety over lockdown were observed because of a sudden decrease in social interaction, impairment of daily life due to the lockdown, and excessive use of technology. Some groups, such as females and higher-educated people were particularly affected by the lockdown and experienced exacerbated symptoms of social anxiety. However, some factors did mitigate the increase in symptoms, including lockdown measures, high socio-economic status (e.g., high family income), history of socialization with friends, and using WhatsApp as a source of information about COVID-19. Furthermore, a positive coping style was shown to result in a high psychological capital and a better acclimation to the COVID-19 pandemic, while a negative coping style was connected to a poor psychological capital and a poorer acclimation to the pandemic. Altogether, the COVID-19 pandemic's psychological impact seems to have left implications for long-term psychological health and well-being in adolescents in the future.

Introduction

The regulations imposed strictly during the beginning and height of COVID-19 promoted reduced social interaction, which impacted many adolescents psychologically, as humans are predominantly, and always have been, social creatures (Itani et al., 2021; Hawes et al., 2022; Morales et al., 2022; Morrissette, 2021; Peros et al., 2021; Huang et al., 2021). This, in turn, greatly impacted the scale of adolescent social anxiety (Itani et al., 2021; Hawes et al., 2022; Morales et al., 2022; Morrissette, 2021; Peros et al., 2021; Huang et al., 2021). Social anxiety is a mental health disorder characterized by the evasion of challenging social encounters and/or the development of incommensurate behavioral responses upon exposure to those encounters (Itani et al., 2021).

This paper will review the impact of COVID-19 on symptoms of social anxiety in two groups of adolescents: those not diagnosed with social anxiety pre-COVID-19 and those diagnosed with social anxiety pre-COVID-19. Overall, the literature has revealed that symptoms of social anxiety were reduced in adolescents with social anxiety pre-COVID-19 (Itani et al., 2021; Hawes et al., 2022; Morales et al., 2022; Li, 2020), but increased in those without social anxiety pre-COVID-19 (Morrissette, 2021; Peros et al., 2021; Huang et al., 2021). However, an initial decrease in symptoms of social anxiety was observed in adolescents diagnosed with social anxiety before the COVID-19 pandemic started (Morrissette, 2021; Peros et al., 2021;

Huang et al., 2021). There was later a sudden increase in symptoms of social anxiety as life slowly reverted back to normal, schools opened, and social interactions became more frequent (Morrissette, 2021; Peros et al., 2021; Huang et al., 2021). Under typical circumstances, research has shown that the prevalence of anxiety disorders remains stable during early childhood, but increases in adolescence because of increasing environmental impact, peer pressure with age, and puberty (Itani et al., 2021). COVID-19 was a huge environmental change, and adolescents were especially impacted by it because of concerns including school closures, the transition to online learning, and home confinement (Morrissette, 2021; Peros et al., 2021; Huang et al., 2021; Li, 2020; Itani et al., 2021; Hawes et al., 2022). Research shows that COVID-19 led not only to increases in social anxiety disorder (SAD), but also in depression and generalized anxiety (Hawes et al., 2022; Chen et al., 2021; Courtney et al., 2020). Specifically, factors such as an increase in psychological distance and government-mitigated uncertainty increased generalized anxiety in adolescents (Zheng et al., 2020). This review, however, will focus solely on social anxiety.

Impact of COVID-19 on social anxiety symptoms

Several recent studies testing for increased symptoms of anxiety in adolescents over the COVID-19 pandemic have found a positive correlation between COVID-19 and symptoms of SAD (Itani et al., 2021; Hawes et al., 2022; Morales et al., 2022). In one study, 18% of adolescents were diagnosed with SAD (Itani et al., 2021). In another study, 29.5% of participants had clinically elevated symptoms of social anxiety (Hawes et al., 2022). Before the pandemic, symptoms of social anxiety improved, and lower levels of anxiety, stress, and COVID-19-related worries were predicted at the start of the pandemic (Morales et al., 2022). However, symptoms of SAD got worse as the pandemic continued (Morales et al., 2022). It should be noted that one Chinese study found that internal factors seemed to have more influence than external factors regarding mental health, though other studies said the opposite (Li, 2020). Social anxiety was generally negatively correlated with individual self-acceptance and degree of self-esteem, while external factors like gender, being an only child, and college major had no obvious influences on social anxiety (Li, 2020). Chinese culture may play a role in this finding. It may be harder for Chinese adolescents to express themselves or talk about their personal troubles because of societal collectivism.

It is also important to note that there were three phases over COVID-19 (Fegert et. al., 2020). Phase one (early 2020 to late 2020) was the preparation phase, when governments enforced restrictive measures to mitigate the spread of infection and lockdown started (Fegert et al., 2020). Phase two (late 2020 to early 2021) was the punctum maximum phase, in which the number of reported cases and mortality rate reached its peak (Fegert et al., 2020). Phase three (late 2021/early 2022 to present) was a return to normality and a recovery from the pandemic (Fegert et. al., 2020). Each phase had its different psychosocial impacts on the community (Itani et al., 2021), and therefore the impact of COVID-19 on social anxiety symptoms may appear differently during different phases. However, this is beyond the scope of the current paper.

Generally, during every stage of COVID-19, symptoms of social anxiety increased in adolescents due to multiple reasons, though it is possible internal factors had more influence than external factors.

Why did symptoms of SAD increase in adolescents during COVID-19?

There are various explanations for this increase in SAD symptoms during COVID-19. One is measures like social distancing and school closures necessitated by COVID-19. Such measures led to a sudden decrease of social activities and contact, which can easily trigger social anxiety, especially in community youths continuing their education at home (Li, 2020). COVID-19's social distancing policies drastically impaired daily life, and social anxiety is often associated with functional impairment in social and occupational domains and in daily activities. A sudden decrease in social activity can trigger depression and social anxiety (Li, 2020) because of how indispensable social interaction is to human beings, especially adolescents. It allows people to obtain the recognition and respect of others (Li, 2020) and to form and maintain relationships. COVID-19's lockdown measures drastically impaired interpersonal communication, which plays a significant role in maintaining a healthy psychological state, as it provides a sense of safety (Li, 2020). This sense of safety guarantees good psychological health (Li, 2020).

Another reason for the increase in symptoms of social anxiety is more frequent use of technology, such as texting, using social media, and playing video games (Itani et al., 2021). During lockdown, teens were cooped up inside and did not have much to do. Many turned to electronics to keep them busy, and some adolescents are still using technology more than they were pre-COVID-19 (a point of concern for some parents today). In one study of adolescents, 31.5% of participants spent more than 4 hours per day using social media and texting (Itani et al., 2021); 59.5% spent more than 6 hours per day playing video games (Itani et al., 2021). Both texting and playing video games are associated with SAD (Itani et al., 2021). Spending too much time using digital devices or going on sites online can lead to poorer mental health. One study found that spending more than 2 hours per day on social networking sites leads to psychological distress and suicidal ideation (Itani et al., 2021). Adolescents who spent more time on social media during lockdown had more symptoms of SAD than their peers (Itani et al., 2021). Some may have expected symptoms of SAD to decrease due to increased social media usage, as social media allowed adolescents to interact despite the pandemic. It is possible that in some adolescents, increased social media usage led to less SAD, but according to the general trend, there was predominantly an increase in SAD (Itani et al., 2021).

Puberty could be another factor, as one study claimed that social anxiety was commonly observed during puberty (Li, 2020). If so, this could be an indicator as to why COVID-19 impacted adolescents so strongly compared to other age groups. It is possible that puberty has exacerbated symptoms of social anxiety for adolescents during the lockdown, but this is beyond the scope of the current paper. The main factors that caused this increase in symptoms of SAD

in adolescents were a sudden decrease in social interaction, impairment of daily life due to the lockdown, and excessive use of technology.

Highly Impacted Groups

The COVID-19 pandemic affected some genders, age groups, and social classes more severely than others. For example, some studies found that females were more negatively impacted by the pandemic than males (Li, 2020; Zheng et al., 2020; Hawes, et al., 2022; Racine, et al., 2021), though others found no association between gender and COVID-19. In one experiment, the psychological capital scores (i.e., positive psychological, developmental state of an individual) of the males were evidently higher than those of the females (Li, 2020), which was in line with other studies (Jing et al., 2021; Tang & He, 2022). This could be because males could accept the challenges of COVID-19 more positively, since they would have a greater sense of achievement once they succeeded, encouraging a higher degree of recognition in their own abilities (Li, 2020). It may be important to note that across several studies, females had higher symptoms of social anxiety, generalized anxiety, depression, and PTSD than males (Li, 2020; Zheng et al., 2020; Hawes et al., 2022; Racine, et al., 2021). Proposed reasons are biological susceptibility, lower baseline self-esteem, higher likelihood of having experienced interpersonal violence, exposure to stress associated with gender inequity (Riecher-Rössler, 2017), greater exposure to stressors during the pandemic and/or heightened response to stress, and greater likeliness to develop internalizing symptoms following exposure to stress and trauma (Hawes et al., 2022).

Higher-educated people, too, may have experienced greater symptoms of anxiety during COVID-19 pandemic because they had a greater knowledge of COVID-19, though this form of anxiety is likely generalized anxiety (Li, 2020). Youth, including young adults and adolescents, were especially vulnerable to the mental health consequences of COVID-19 (Hawes et al., 2022). In Spring of 2020, nearly all education in the U.S. transitioned to remote learning and colleges across the country closed their dorms, forcing college students to move back home (usually to their families) and limiting social interaction with peers (Hawes et al., 2022). Student status and younger age have been associated with worse mental health during COVID-19 in Asian samples, and a recent review on the relationship between mental health and loneliness or social isolation in children or adolescents warned that COVID-19 social distancing measures may have been particularly detrimental to youth (Hawes et al., 2022). Therefore, several groups, including females, higher-educated people, and youth seemed to have been acutely impacted by the COVID-19 pandemic (Li, 2020).

Psychological Capital and Coping Abilities

As mentioned briefly before, psychological capital is the positive psychological, developmental state of an individual, which is observed during individual growth processes and mainly manifested and characterized by high hope, optimism, self-efficacy, and resilience (Li,

2020; Luthans et al., 2004). It is essentially an internal source that helps people manage tough situations.

Coping style is the cognitive and behavioral patterns adopted by pressured individuals (Li, 2020; Early & Grady, 2016). It is an important skill used to adapt to a new environment and maintain a positive mental health (Li, 2020). Coping style can be divided into two groups: positive coping and negative coping (Li, 2020). Positive coping is when individuals adopt an optimistic attitude to cope with stressful events (Li, 2020; Nogalski et al., 2018). They believe that they have the ability to solve their problems and actually take action to solve them (Li, 2020). Negative coping is when individuals relieve their stress-induced negative emotions through evasion and resistance (Li, 2020; Nogalski et al., 2018). One study observed that science and engineering majors were more likely to adopt a positive coping method, while liberal arts majors were more inclined to adopt a negative coping method (Li, 2020). This may be because science and engineering majors tended to be more rational and liberal arts majors tended to be more meticulous and emotional (Li, 2020). This same study found that coping style partially mediated the relationship between psychological capital and social anxiety (Li, 2020). Another study found an association of self-rated health with coping style and psychological capital (Jing et al., 2021)

From a COVID-19 context, those with a high psychological capital possessed stronger mental adaptive abilities during the pandemic and were able to make an uncomfortable social setting more comfortable (Li, 2020). They frequently chose to actively acquire information and therefore show better endurance when social settings were out of their control (Li, 2020). So, they were likely to adopt a positive coping style with positive and effective countermeasures and fully recognize their own abilities and believe they can solve their problems through their own (Li, 2020). This resulted in a lower probability of developing social anxiety, due to their mitigating and positive attitude (Li, 2020). Poor psychological capital and false coping strategies meant negative individual attentive circulatory function, aggravated negative disturbance (caused by individual cognitive pattern to attentive circulation process would be aggravated), negative expectation, and the development of false coping strategies (Li, 2020). The poorer the psychological capital, the more easily individuals could adopt negative coping strategies (Li, 2020). Therefore, a negative coping style was associated with poor psychological capital and a positive coping style was associated with high psychological capital, so those with a positive coping style were more likely to be less affected by the reduction of social interaction during the COVID-19 pandemic and vice versa (Li, 2020).

Mitigating Factors

While some studies found lockdown to increase symptoms of social anxiety, one study found that lockdown measures buffered COVID-19's detrimental effect on social anxiety, though it is possible that culture (e.g., Chinese) played a part in this (Zheng et al., 2020). Lockdown reduced psychological distancing, which, in turn, relieved social anxiety (Zheng et al., 2020). This would be observed to a greater degree in individuals diagnosed with SAD pre-pandemic.

Another mitigating factor is high socio-economic status (Itani et al., 2021). Families with a higher income suffered less SAD than low-income families, which is consistent with studies about the influence of family income on the socio-emotional, mental, physical, and environmental health of family members (Itani et al., 2021). With a higher family income, parents are less stressed and can provide better nutrition and health care for their family and can invest in more educational resources, while lower-income families are associated with parental mental health problems, divorce, lack of intimacy with children, school problems, financial difficulties, and differing treatment of siblings (Itani et al., 2021). High family income allows children to go out with their friends more frequently and hence enables more socialization (Itani et al., 2021). One study showed that adolescents who went out with their friends more than 3 times per month had less SAD than the rest of their peers (Itani et al., 2021). History of socialization with friends is another mitigating factor (Itani et al., 2021), probably because adolescents are more likely to contact their friends and socialize instead of isolating themselves in home quarantine.

Using WhatsApp as a source of information about COVID-19 infection was yet another mitigating factor (Itani et al., 2021), which may be because frequent WhatsApp users are naturally more sociable than others, or perhaps because habitually using WhatsApp promoted interaction during the COVID-19 pandemic. Thus, several factors mitigated the impact of COVID-19 on symptoms of social anxiety in adolescents, including lockdown measures, high socio-economic status (e.g., high family income), history of socialization with friends, and using WhatsApp as a source of information about COVID-19 (Itani et al., 2021).

Adolescents Diagnosed with SAD pre-Covid

A separate phenomenon occurred with adolescents who already had, and were aware they had, SAD before COVID-19 struck. In these adolescents, symptoms of social anxiety decreased, then increased dramatically (Morrissette, 2021; Peros et al., 2021; Huang et al., 2021). At first, symptoms of SAD decreased because lockdown and social distancing measures due to the COVID-19 pandemic made it much easier to avoid stressful social situations (Morrissette, 2021; Peros et al., 2021; Huang et al., 2021). For example, school closures allowed these teens respite from having to talk to peers or worry as much about class participation and home confinement allowed reduced in-person interaction (Morrissette, 2021; Peros et al., 2021; Huang et al., 2021). Functional impairments (i.e. difficulties in taking care of oneself and completing daily activities) also decreased (Morales, et al. 2022).

Then, when lockdown and social distancing measures were lifted, schools opened, and life, especially social life, began to return to normality, these adolescents experienced exacerbated symptoms from having avoided interaction for so long (Peros et al., 2021; Huang et al., 2021). They had been given a period of respite during lockdown, which temporarily improved their SAD symptoms (Morrissette, 2021; Peros et al., 2021; Huang et al., 2021). As a result, many adolescents refrained from seeking out help (Peros et al., 2021; Huang et al., 2021). Many reported decreased physical and psychological symptoms (Peros et al., 2021; Huang et al., 2021). This seemed like a wonderful thing, and it must have been at the time, but the

consequences were terrible. Prolonged avoidance of social situations made returning to normal social life much harder (Peros et al., 2021; Huang et al., 2021). Social anxiety is primarily treated by easing adolescents into social situations and forcing them to interact with others (i.e., exposure therapy). It was impossible to do this during the pandemic, and avoiding their social anxiety was not a permanent fix. Having to suddenly re-immerse themselves into in-person interaction was somewhat like jumping into ice-cold water instead of coming in slowly and gradually, bit by bit. Doing so would give a person a terrible shock, and for adolescents, it was a little bit like this. This stress and anxiety is what led to exacerbated symptoms of social anxiety. Therefore, a decrease in symptoms of SAD was initially observed in these adolescents as the COVID-19 continued, but then a sharp increase in symptoms of SAD was observed when life started to revert back to normal, school closure regulations were lifted, and adolescents were forced to interact after a long period of respite (Morrissette, 2021; Peros et al., 2021; Huang et al., 2021).

Implications

COVID-19 was only one of many factors leading to an increase of social anxiety, though it was frequently a main factor. For example, social distancing and lockdown, which are directly linked to COVID-19, often led to increases in symptoms of social anxiety. In places with high COVID-19 cases, pure knowledge of the possibility of getting infected led to heightened anxiety. In other cases, it was more like a chain of events, as COVID-19 and the resultant lockdown led to activities instigating SAD such as more frequent use of technology. Then there were some factors completely non-related to the pandemic itself, such as socio-economic status, which impacted quality of life in the pandemic, which therefore led to an increase in anxiety or none at all. So, often, COVID-19 was the direct reason behind increases in social anxiety in adolescents, though sometimes it was not. Life during lockdown might have felt worse for adolescents and caused them to be more anxious than other age groups because of puberty and heightened sense of external pressures (such as peer pressure). COVID-19 simply made life even more difficult than it would have been for them. Such an impact on an adolescent's mental state, especially as they start to go through changes and develop psychologically, can be devastating. Social interaction is extremely important to the human mind, so a pandemic in which everyone was essentially quarantined for two years can have a debilitating mental impact, especially in an age where technology prevails over everything. It can allow people to connect while quarantined, but can also be addictive and cause adolescents to become accustomed to strictly online communication and do nothing but watch TV all day. Plus, quarantine can act as a means of escape for those already struggling with SAD, but overcoming it is not done by avoidance; it is necessary to practice social interaction and face those fears so they will not become overwhelming later and they can gradually sink into such interaction through repetition. Quarantine gave them an excuse to avoid interpersonal conversation, so it is like all the wariness and dread became bottled up, like pressure in a glass bottle, and it built up to such an extent that when they finally opened the bottle, it exploded. It became so much harder to interact

because they were not eased into it—they rushed into it all at once, from one extreme to the other. Therefore, if social anxiety was not immediately addressed and allowed to develop arbitrarily, it could inflict serious harm on youths' mental health and cause adverse effects on their schoolwork and life (Li, 2020). Multivariable analyses suggest that school concerns, including concerns about passing classes, juggling school work with other responsibilities, and online classes being poor quality, were uniquely associated with increases in depression symptoms (Hawes et al., 2022). This is consistent with a study on adolescents in Australia during COVID-19 and suggests that the transition to online learning may have been a particularly significant stressor for youth (Hawes et al., 2022). Concerns related to being confined at home, including experiencing cabin fever and a limited social life, were uniquely associated with increases in generalized anxiety, which suggests that shelter-in-place and social distancing measures more specifically contribute to increased diffuse worries (Hawes et al., 2022). In addition, this increase in social anxiety in pandemic areas may lead to riots or violence (Zheng et al., 2020). Therefore, the impact COVID-19 has had on adolescents' psychological health should be addressed, especially since adolescents have been particularly impacted by the measures caused by the COVID-19 pandemic. Lastly, additional research is needed to clarify outstanding questions. For example, some researchers have explored whether people already living in an isolated area, like Antarctica, were impacted by the COVID-19 pandemic in the same manner or extent as those living in cities or urban societies and have examined their psychological states, but researchers should delve deeper into this. And, of course, when more time has passed, researchers should inspect the long-term psychological impacts of COVID-19 on various age groups, including adolescents. The increase in SAD during the pandemic leaves implications of a lasting impact in the future.

Conclusion

The COVID-19 pandemic greatly impacted adolescents, including increasing symptoms of social anxiety. For adolescents not diagnosed with COVID-19, the pandemic worsened symptoms of social anxiety in adolescents because of lessened social interaction, use of technology, and uncertainty. It was particularly bad in females, people living in places with high COVID-19 cases, and high-educated people. Some mitigating factors were the lockdown itself, high socio-economic status, a higher family income, a history of socialization, and using WhatsApp as a source of information about the pandemic. However, there was a different trend observed in adolescents already diagnosed with COVID-19 before the pandemic hit. With these adolescents, lockdown helped ease symptoms of SAD and provided a period of respite, but then their symptoms worsened in the third stage of the pandemic, when life started to revert back to normal. They had avoided socialization and in-person interaction with their peers, which just exacerbated their symptoms when they had to go back to school. Therefore, the COVID-19 pandemic impacted adolescents in a multitude of ways, differing with each person, but a general trend of worsened mental health was observed in adolescents. Mental health is vitally important, especially in adolescents, who are already struggling with changes in their body and possibly

stressful social settings. Hence, it is imperative that this decline in adolescent mental health is acknowledged and treated accordingly.

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