

# ***Adolescents' Problem Behaviors during COVID-19: Types, Risk Factors, and Interventions***

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**Abstract:** COVID-19 has brought many issues to our society. One among them is the problem behaviors in adolescents. Compared to adults, adolescents are more vulnerable to both the virus and stressors brought by the pandemic. This article focuses on adolescents' problem behaviors during the COVID-19 pandemic. Based on previous studies, we analyze four types of problem behaviors that are prevalent during the pandemic in depth – depression and anxiety, suicidal ideation, internet addiction, and truancy. According to their definitions, we categorize depression, anxiety, and suicidal ideation as internal problem behaviors, and internet addiction and truancy as external problem behaviors. The risk factors and intervention strategies are also discussed in line with existing research. Risk factors are discussed from the individual (big five personality traits and self-control strength), family (family relationship), and school aspects (interpersonal relationship and academic stress). Intervention strategies are also explored at individual, family, and school levels. Interventions discussed in this article include logotherapy, physical activities, attachment-based family therapy, and peer education.

**Keywords:** Adolescent problem behavior, COVID-19 pandemic, suicidal ideation, internet addiction, truancy.

## **1. Introduction**

Since the end of 2019, the world has been experiencing an unprecedented disaster. COVID-19 has brought to the world not only physical pain, but also enormous changes in living patterns. With the restriction of social contact and closure of public utilities, many concerns have been brought out. One of them is the new pattern of students' life. Because of this unpredictable pandemic, students must suddenly adapt to online courses, which is not an easy task for most who are used to in-person teaching.

Under this sudden change, many problem behaviors emerged in adolescents. Problem behaviors are abnormal behaviors that have a negative influence on one's social adaptation [1]. Chi Xinli et al. classified problem behaviors into two dimensions – internal problem behaviors, which are more related to negative emotions or mental states, and external problem behaviors, which are actual unacceptable actions adolescents commit. Problem behaviors have serious effects on adolescents' development. Without proper treatment, they may upgrade to antisocial behavior or even crime as youth grow up. There are problem behaviors under both categories being performed under the pandemic. According to research by Qin Huang et al., students of secondary vocational schools in

Guangxi, China have shown suicidal ideation at a rate of 11.1% [2]; Peng Chen and Shiling Fan discussed in detail truancy among college students [3]; researchers also found the prevalence of internet addiction among high school students during the pandemic [4]. These problems are too critical to ignore, especially in nowadays when the society is tending to resume social work and facilities with the pandemic continuing. It is necessary to explore the factors that influence adolescents' behavior, so that society knows where to put effort to improve the system. Previous studies are scattered in region and age. Most research focuses on only one problem behavior of students in one specific region. Few studies integrate results of a wider range of problem behaviors. This study will discuss the dimensions and types of problem behaviors during the pandemic through a literature review, aiming to expose the serious effect brought by COVID-19 and seek countermeasure against this kind of emergency for the future.

## **2. Types and Situation of Adolescents' Problem Behaviors During COVID-19 Pandemic**

As mentioned before, previous research has brought up two dimensions of problem behaviors – internal problem behaviors and external problem behaviors. The difference is that internal problem behaviors are usually negative thoughts or feelings, while external problem behaviors are actual behaviors being presented.

### **2.1. Internal Problem Behaviors**

According to existing research, three internal problem behaviors are prevalent during COVID-19: suicidal ideation, depression, and anxiety.

#### **2.1.1. Suicidal Ideation**

Suicidal thoughts before suicidal attempts or committing suicide are categorized as internal problem behaviors. Suicidal ideation is the thought or plan of committing suicide before ever attempting suicide [5]. Suicidal ideation can be a predictor of future suicidal risk. A cross-sectional study collected hospital intake data on suicidal ideation (SI) and suicidal attempts (SA) of adolescents. The results show a significant increase in both SA and SI after the outbreak of COVID-19 [6]. In another cross-sectional study based on data from the Children's Hospital of Philadelphia (CHOP) primary care network, researchers collected data on the frequency of screening for depression and suicide risk and the number of positive results from the pre-COVID-19 period and COVID-19 period respectively. The subjects' ages range from 12 to 21. The results show an increase in both percentages of positive depression screening and positive suicide risk screening [7]. In a study conducted by Qin Huang et al., researchers randomly selected students from secondary vocational schools in Guangxi, China. Suicidal ideation was measured with a self-report questionnaire. The result shows that the positive screening for suicidal ideation is 11.1% [2]. Luckily, a study showed that the suicide rate did not increase after the outbreak in Japan [8]; but the increasing suicidal intention is not neglectable. In many cases, suicidal intentions are related to mental disorders such as depression and anxiety.

Integrating some previous research, we can see an increase in suicidal ideation among adolescents during the pandemic than before. This indicates a potential suicidal risk for adolescents and reflects that their mental health is not optimistic. Although there's no evidence showing an increase in adolescents' suicide attempts, we should not ignore these potential problems.

### 2.1.2. Depression and Anxiety

Depression and anxiety are common internal problem behaviors during COVID-19. Many studies have been conducted on them. Since most studies are online surveys based on self-report, depression and anxiety measured are usually symptoms instead of mental disorders on the clinical dimension. A study measured the prevalence of depression among students in Beijing, China during COVID-19 via an online survey [9]. The percentage of students reported obvious depression symptoms was 31.3%. Compared to a pre-COVID study showing 24.3% of participated students in Beijing had been diagnosed with depression, the rate of depression did increase during COVID-19. A longitudinal study based on data from another longitudinal project showed significant increases in both rates of depression and anxiety after the COVID outbreak [10]. Another longitudinal study integrated data from 12 ongoing longitudinal studies. Overall, participants in this study were adolescents from 3 countries. The result showed a significant increase in depression symptoms of 28%, but no significant increase in anxiety symptoms [11].

The results of current studies have shown a significant correlation between COVID-19 and depression (and anxiety in some cases). Some research studied depression along with other topics and found that the increase in depression and anxiety is also an influential factor to other problem behaviors during the COVID period.

## 2.2. External Problem Behaviors

Current studies have found two major problem behaviors related to COVID-19: internet addiction and truancy.

### 2.2.1. Internet Addiction

Internet addiction is a controversial topic. In this review paper, to be consistent with reviewed research, internet addiction is defined as dependence and impulse on using the internet (including games, social media, and so on). A cross-sectional study in China found an increase in the duration and frequency of using electronic devices recreationally. For the participating non-internet addictive group, the frequency of staying up late using electronic devices increased, which may reflect the potential risk of internet addiction [12]. In another research in Indonesia, participated adolescents also report an increase in internet use, which, along with sleep disturbance, decreased prosocial behavior, internalization, and externalization consist of risk factors of internet addiction. This research also found that internet addiction is more prevalent among adolescents than adults [13]. A study conducted among Italian students found an association between fear of COVID and internet addiction, as well as the mediator role of fear of COVID in the relationship between anxiety and internet addiction [14].

Overall, internet use among adolescents in each studied country has increased after the COVID outbreak. They have also shown correlation to other psychological issues including depression, anxiety, and sleep disturbance.

### 2.2.2. Truancy

Truancy refers to students' unexcused absence from school, usually performed by students spontaneously. The 34th Legislature of Virgin Islands reported the impact of COVID on the truancy rate. According to their report, the percentage of students absent for 10 or more days was 21.4% in the 2018-2019 school year and 56.4% in the 2019-2020 school year, with an increase of 35%. Although the absence rate decreased to 33.7% in the 2020-2021 school year, it was still higher than that before the COVID outbreak [15]. Besides physical absence from school, a new form of truancy

emerged due to the school closure and the prevalence of remote education during the COVID period. Online truancy is students performing truancy when taking online classes by not showing up in online classrooms or do show up but not doing in-class activities. Since remote education just became popular these years, only a little research has studied the topic of online truancy. A study by Peng Chen and Shiling Fan interviewed college students who took online classes and categorized online truancy into four types: 1) attending online classes but focusing on other entertainment from the internet; 2) listening to class while doing housework; 3) showing up in online classrooms but physically doing other things without listening; 4) never showing up to class. Many students in this interview reported that online truancy negatively affected their learning efficacy and academic performance [3].

In conclusion, truancy was serious during the COVID period. And although hard to investigate, online truancy also emerged as a problem with the prevalence of remote learning brought by COVID.

### **3. Risk Factors for Adolescents' Problem Behaviors During COVID**

Many influencing factors can be related to adolescents' problem behaviors during COVID. According to previous studies, main factors can be classified into three dimensions.

#### **3.1. Individual Factors**

Individual factors are the different traits of each adolescent that can influence their problem behaviors. Studies have found that big five personality traits, self-control, and gender can significantly influence adolescents' problem behaviors.

Big five personality traits put personality traits into five dimensions including: openness, conscientiousness, extraversion, agreeableness, and neuroticism. Previous studies have found that the big five personality traits and problem behaviors in adolescents predict each other [16]. During the COVID period, Aneta Przepiorka et al. conducted a study on the relationship between the big five personality traits and problematic internet use among university students. The results indicate a negative correlation between problematic internet use and extraversion, agreeableness, conscientiousness, neuroticism, and openness [17].

Self-control strength is mainly correlated with internet addiction and truancy behaviors. Akin et al. suggest that self-control negatively predicts internet addiction [18]. During COVID, because of social distance and the prevalence of online education, electronic devices became easier to access by adolescents. More exposure to the internet increases the possibility of internet addiction, especially among the low self-control group who are more vulnerable to internet allure. Truancy also correlates with low self-control since it is easy to disengage in online classes. In the interview conducted by Peng Chen and Shiling Fan, many students reported that their reason for online truancy was low self-control [3].

Gender differences are found in some problem behaviors. Many studies have shown that during COVID, specific gender score higher on specific problem behaviors. In the study by Qin Huang et al., female students score relatively higher than male students on self-reported depression and suicidal ideation [2]. In the internet addiction study by Dong Huixi, a larger percentage of boys performed addictive use of the internet than girls [12].

#### **3.2. Family Factors**

Another factor comes from family, which mainly consists of the relationship between parents and children.

During the COVID-19 pandemic, everyone in the society is under pressure, including both children and parents. The quarantine policy forces family members to stay together for more time than the pre-COVID period, increasing the possibility of family conflict. A study conducted by Chung Gerard et al. addresses the relationship between parenting stress and family relationship – the more stress parents feel from COVID, the harsher parenting and less closeness they have toward their children [19]. This leads to a negative relationship between children and parents, influencing children's mental state. According to a study by Yirui Song, the parental relationship and suicidal ideation are significantly and negatively correlated [20].

### **3.3. School Factors**

Two school factors influencing adolescents' problem behaviors during COVID are weakened interpersonal relationships and academic stress.

Since the outbreak of COVID-19, social distancing, school closure, and changes on teaching patterns have broken the normal channel adolescents use to connect with their friends. In the study by Chengren Ke et al., students reported that the first two reasons for depressive mood and suicidal ideation are learning-related factors and interpersonal relationship, respectively [21]. William Killgore et al. reported an increase in loneliness during the early stage of COVID-19, especially among restricted regions [22]. Loneliness is a negative feeling that can lead to internal problem behaviors. In the study by Jiayu Li et al., loneliness and problematic mobile phone use are significantly and positively correlated with each other, with a mediator of escape motivation and a moderator of self-control. Adolescents' long online relationship to escape from loneliness in reality leads to their addictive behaviors [23].

Another significant factor is academic stress. School closure has brought a big change to students' pattern of learning. Difficulties in adapting to the new pattern can increase anxiety and depressive mood in students, especially among students in higher grades who are under greater academic pressure. Shanshan Liu et al. found a higher rate of anxiety among high school students than students in lower grades. [9]

## **4. Intervention of Adolescents' Problem Behaviors During COVID**

Intervention for adolescents' problem behaviors during COVID can be taken from three aspects – individual, family, and school.

### **4.1. Individual Interventions**

To intervene in adolescents' problem behaviors, it is important for adolescents to recognize their problems and adjust themselves. Currently, researchers have brought up some effective interventions on individual aspects against adolescents' problem behaviors during the COVID period, including logotherapy from the psychological aspect, and relaxing activities in the physical dimension.

For the psychological dimension, positive psychology-based interventions are effective, for example, logotherapy. Positive psychology is about positive experience, positive personality traits, and civic virtues [24]. Logotherapy is psychotherapy that encourages patients to find the meaning of life for subjects and overcome crises [25]. It has been used as an intervention for depression and anxiety [26]. A previous study has found that Logotherapy-Based Mindfulness Intervention significantly correlates with a decrease in internet addiction scores of adolescents during COVID [26].



For physical adjustment, relaxing activities are some options. A study by Manisha Vajpeyee et al. found that a combination of Yoga and music is effective in reducing levels of anxiety, stress, and depression [27].

#### **4.2. Family Interventions**

As analyzed in the previous part, studies have shown that one risk factor for adolescents' problem behaviors from the family is the parent-child relationship. Therefore, family interventions can start with building a healthy parent-child relationship and strengthening parent-child attachment. A review of the treatment of internet addiction by Xuiqin Huang and colleagues suggests family interventions include increasing awareness of internet addiction, recognizing and understanding of children's feelings and psychological state, facilitating family communication, and regulating parents' emotions and behaviors [28].

Attachment-based family therapy (ABFT) is another approach. It contains five tasks – 1) shift the family focus from fixing children's problem to improving the family relationship, 2) find family conflict affecting children, 3) address parents' stressors, 4) rebuild trust and attachment between parents and children, and finally 5) promote children's success outside of the family. This therapy showed significant effectiveness on treating depression and reducing depressive symptoms in children [29]. During the COVID-19 period, parents and children can also focus on these five aspects to create a positive family atmosphere and intervene in problem behaviors.

#### **4.3. School Interventions**

School is one of the main places for adolescents to acquire social interaction. Researchers have proposed some interventions that schools can take to prevent or reduce adolescents' problem behaviors during COVID: strengthening supervision and peer interaction.

Research on internet addiction during COVID found that internet addiction correlates to low self-control and the simplicity of absence, based on which, researchers suggest that schools should strengthen their supervision by more strict attendance rules to improve students' participation [3].

For the interaction with peers, researchers bring up an interesting strategy called peer education. Based on the study by Xiushi Ding and colleagues, peer education is a health education model in which individuals with similar features (e.g. age, gender, etc.) share information. Because of those similarities, individuals are more willing to accept this form of education. During peer education, a preselected group of students with high enthusiasm was taught specific knowledge, and then they conveyed that knowledge to a group of peers. The result was that anxiety and depression scores decreased more for the peer-educated group compared to control groups after the health education [30].

### **5. Summary and Suggestions for Future Research**

Existing studies suggest that adolescents' problem behaviors are threatening their mental and physical health and cannot be ignored. This article, integrating contents from previous studies, analyzes four kinds of adolescents' problem behaviors based on two dimensions – internal problem behaviors including depression, anxiety, and suicidal ideation, and external problem behaviors including internet addiction and truancy. The risk factors relating to each problem behavior and possible prevention strategies are also explored in this article. This can be a guide for future study of problem behaviors of adolescents and public mental health under social emergencies such as the COVID-19 outbreak and for institutions to create emergency measures.

Because of the rarity of emergency events such as COVID-19, current studies have some limits. One is the lack of control data from the period before COVID-19 in some studies. For example, in

the study by Huang Qin and her colleagues, although results show that the suicidal ideation rate is high to some extent, there is no pre-COVID data to compare with, so we are unsure about whether COVID-19 consists of the main risk factor in this study. A second limitation is that current studies select subjects in a broad age range. While adolescents of different ages can vary a lot, some problem behaviors found in certain age groups may not be representative of the whole adolescent group. Therefore, future studies can focus on specific age groups and study their problem behaviors. It is also suggested that periodic recording of data on public mental health is necessary to study social or environmental effects on public mental health.

With the emergence of new mutations of the COVID virus, all societies are heading toward a situation of coexisting with COVID. So, it is important for people to adjust to this new environment.

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