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The Effects of COVID-19 Quarantine on Young Adults in San Francisco Bay Area

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Discovered on December 31, 2019, and was officially declared a pandemic on January 30, 2020; COVID-19 or more precisely SARS-CoV-2 is a specific strain of the coronavirus. Its danger mostly lies in its highly infectious transmission from person to person. This research paper aims to investigate the behavioral effects of COVID-19 pandemic on young adults' everyday activities (n=51) living in the San Francisco Bay Area. To achieve this, the author has conducted a short survey among highschool students that has targeted to measure the effect of change in their everyday activities measured by change in time spent in hours of physical activity, hours on social media, hours of sleep, hours of time spent with family and friends, and hours spent alone, on the change in their happiness level. The findings have shown relatively higher correlation between happiness levels and two variables, namely time spent with friends/family and time spent on social media.

Keywords: COVID-19 Pandemic, Quarantine, Attitudes, Happiness Levels, Young Adults

INTRODUCTION

Since the first outbreak of COVID-19 in Wuhan, China; this pandemic has become a major global concern and caused detrimental health, economic, political and mental impacts all over the world. According to covidvisualizer website, by October 22, 2021, the number of COVID-19 cases has globally surged, with 243,547,676 confirmed cases with 4,949,717 deaths in 223 countries and territories (Worldometers, 2021).

Due to the daily and rapid increase of cases and deaths worldwide, a vast majority of governments decided to place executive orders such as temporary closure of schools, universities and non-essential businesses, increased work-from-home orders and hybrid or online schooling, cancellation of crowded events, lockdown and quarantine (Sohrabi et al., 2020). Thus, these measures have obliged people to stay at home, keep social distance and reduce physical contact. These restrictions have slowed down most of personal, social, educational, and work activities (Dennen et al., 2021). Thus, quarantine has become a widely used control strategy during COVID-19 (Lu et al., 2020).

While there are strict shelter-in-place guidelines that are intended to benefit public health and decrease the number of cases and deaths, there are negative consequences of these circumstances (World Health Organization, 2020).

The World Health Organization (WHO) describes "quarantine" as "the restriction of activities or separation of persons who are not ill, but who may have been exposed to an infectious agent or disease, with the primary objective of monitoring symptoms and the early detection of cases".

On the other hand, in their rapid review on the psychological impact of quarantine, Brooks et al. (2020) have defined "quarantine" as "the separation or restriction of the activities of individuals who may have been exposed to infectious diseases to reduce their risk of infecting others".

Brooks et al. (2020) have also recommended some measures to decrease the negative effects of quarantine on adults; similar to WHOs (2020). These measures have included keeping the duration of quarantine as minimal as possible; providing people with as much clear information about the disease and the reasons for quarantine as possible since inadequate information might often lead to fear and spread of rumors; provision of adequate



supplies such as food, groceries, medicines as rapidly as possible and in adequate quantities; reduce the boredom and improve the communication by providing people with uninterrupted Internet and other entertainment services as social media platforms are helpful as tools of communication and help to reduce the impact of psychological stress by making people feel connected to each other.

The period known as adolescence or young adulthood is one of the most significant in human development (Bornstein et al., 2012). Not only is it a time when the young adult tries to assert their individuality and independence but they forsake their familial connections, often avoiding parents, spending more time with friends who are more in tune to the young adults' interests. At this time, new neural networks are laid down preparing the adolescent for a more adult view of the world. This period is so critical and crucial to their development that the interruptions caused by quarantine may have a profound effect on their psychosocial development (Kapetanovic et al., 2021).

Although quarantine aims to protect individuals' health from infectious diseases, Brooks et al. (2020) have found that the use of quarantine measures may have negative economic, psychological, and social impacts on people from different ages.

People have experienced difficulties getting food and other daily necessities (DiGiovanni et al., 2004). Lack of access to basic supplies has increased feelings of tension, frustration and anxiety (Bonanno et al, 2010; Maynard et al., 2019). High levels of these feelings have resulted in failures in people's coping strategies with new circumstances. Thus, many people have tended to escape to social media to stay conceptually busy with other things and at least temporarily forget the negative circumstances around them (Marino, 2018).

Lin et al. (2010) and Jeong et al. (2016) have stated that quarantine is an unpleasant experience that may trigger various psychological problems such as depression, anxiety, fear, loneliness, resentment, and confusion. Brooks et al. (2020) have determined that quarantine may be accompanied by other psychologically damaging factors including financial loss, inadequate access to information, and boredom. Although Reynolds et al. (2008) and Taylor et al. (2008) have found that quarantine experiences are negatively associated with psychological outcomes; Locke et al. (2019), on the contrary, have stated that quarantine may also have beneficial psychological impacts on individuals since it can effectively reduce an individual's risk of being infected, thereby removing the infectious pressure on them.

Depoux et al. (2020) and Gao et al. (2020) have determined that the need for physical isolation specifically of people in quarantine has contributed to enhanced use of online social media to stay in contact with family and friends. Moreover, Pennycook et al. (2020) have found that people have used social media to get updates about the current COVID-19 situation.

As the outbreak of COVID-19 has brought many uncertainties and caused fundamental changes in everyday life, the quarantine has motivated many scientific researches on the psychological challenges that it has posed to people from different ages, professions and geographic locations. COVID-19 is found to increase the effects of stress and uncertainty on physical and mental disorders, increasing feelings of anxiety (Brooks et al., 2020), depression (Tull et al., 2020), eating disorders (Cherick et al., 2020) and posttraumatic stress syndrome (Tanga et al., 2020). Moreover, Kang et al. (2020) have reported the negative psychological impacts of COVID-19 as stress, anxiety, depression, insomnia, denial, anger and fear.

During the COVID-19 quarantine in Summer 2020, Dennen et al. have conducted a research on 41 young adults in a midsize city in the US. They have found that social media use is critical for young adults in maintaining friendships and has enabled them to pursue independent informal learning activities.

Allcott et al. (2020) have shown that time spent alone, time spent in social media use has been associated with reduced emotional well-being.

Cauberghe et al. (2021) have conducted a survey on 2,165 Belgian young adults (13–19 years old) and tested how their feelings of anxiety and loneliness contributed to their happiness level, and whether different social media coping strategies (active, social relations, and humor) mediated these relations. They have found that feelings of loneliness have a higher negative impact on happiness than feelings of anxiety. However, anxious respondents have indicated to use social media more often to actively seek for a manner to adapt to quarantine, and to a lesser extent as a way to keep in touch with their friends and family. The indirect effect of anxiety on happiness through active coping to quarantine was found to be significantly positive. Respondents who were feeling lonely were determined to be more inclined to use social media to cope with lacking social contact. However, this coping strategy was not found to be significantly related to their happiness feelings. On the other hand, humorous coping was found to be positively related with feelings of happiness, but influenced

neither by loneliness nor anxiety. Finally, they have concluded that social media can be used as a constructive coping strategy for young adults to deal with anxious feelings during the COVID-19 quarantine.

In addition, Brailovskaia et al. (2021) have conducted a survey on students in Germany and Lithuania and concluded that the use of social media during COVID-19 quarantine may contribute negatively to human well-being. This result has confirmed the findings of Twenge and Campbell (2018).

Ellis et al. (2021) have conducted a research on 1216 young adults in Canada. They have responded to questions on stress surrounding the COVID-19 crisis, feelings of loneliness and depression, as well as time spent with family, time spent online with friends, doing schoolwork, using social media, and engaging in physical activity. Results have shown that young adults who spent more time on social media, have suffered from more loneliness and depression. Findings also have shown that time spent with family and schoolwork was related to less depression.

Kapetanovic et al. (2021) have conducted a research on 1767 young adults in Sweden.

They have reported that their relations with family and friends, and everyday lives were relatively unchanged in comparison to the period before the COVID-19 outbreak. However, a total of 30.1% of adolescents reported a decrease in spending time with family doing fun things, while a total of 49.6% of adolescents reported a decrease in meeting with friends outdoors.

Gupta et al. (2020) have found that sleep pattern, schedule, quantity and quality are influenced by COVID-19 lockdown.

Sanudo et al. (2020) have revealed that people have spent less time with physical activity, more time using the smartphone, and more hours sleeping during the COVID-19 outbreak.

An online study by Trabelsi et al. (2021) have shown that the COVID-19 quarantine has significantly and negatively affected people's and physical activity levels as well as sleep patterns and quality.

In the San Francisco Bay Area, officials have been diligent in taking action to prevent new cases from occurring, with monthly extensions put in place since March 2020. Although the quarantine has affected almost the entire population, it has especially adversely affected multiple aspects of daily living for young adults. Access to everyday life has extremely been restricted. Moreover, there has been uncertainty about almost everything including the duration of this restriction. Therefore, in this paper, the author aims to examine how the quarantine measures in the San Francisco Bay Area have affected young adults' everyday lives and happiness levels.

METHODS

A survey consisting of ten questions was constructed to analyze the impact of COVID-19 on the young adult population in the San Francisco Bay Area. Questions included the following topics: hours of physical activity, hours on social media, hours of sleep, hours of time spent with family, and hours spent alone. Data related to each of these topics were collected prior to quarantine and during quarantine. At the end of the survey, participants are asked to rate their happiness on a Likert scale of 1 to 10 before and during quarantine, with 1 representing "not happy at all" to 10 "extremely happy". The rating scale, i.e. 10 extremely happy (feeling ecstatic, joyous, fantastic) 9 very happy (feeling really good, elated) 8 pretty happy (spirits high, feeling good) 7 mildly happy (feeling fairly good and somewhat cheerful) 6 slightly happy (just a bit above neutral) 5 neutral (not particularly happy or unhappy) 4 slightly unhappy (just a bit below neutral) 3 mildly unhappy (just a little low) 2 pretty unhappy (somewhat "blue", spirits down) 1 very unhappy (depressed, spirits very low) 0 extremely unhappy (utterly depressed, completely down) was adapted from Seidlitz and Diener (1993).

The survey was initially distributed to fifteen individuals via direct messages on social media. Individuals were instructed to pass on the survey to peers once they completed their survey. Survey responses (n=51) were collected through Google Forms, which consolidated the data into Google Sheets between July 10, 2020 and July 25, 2020.

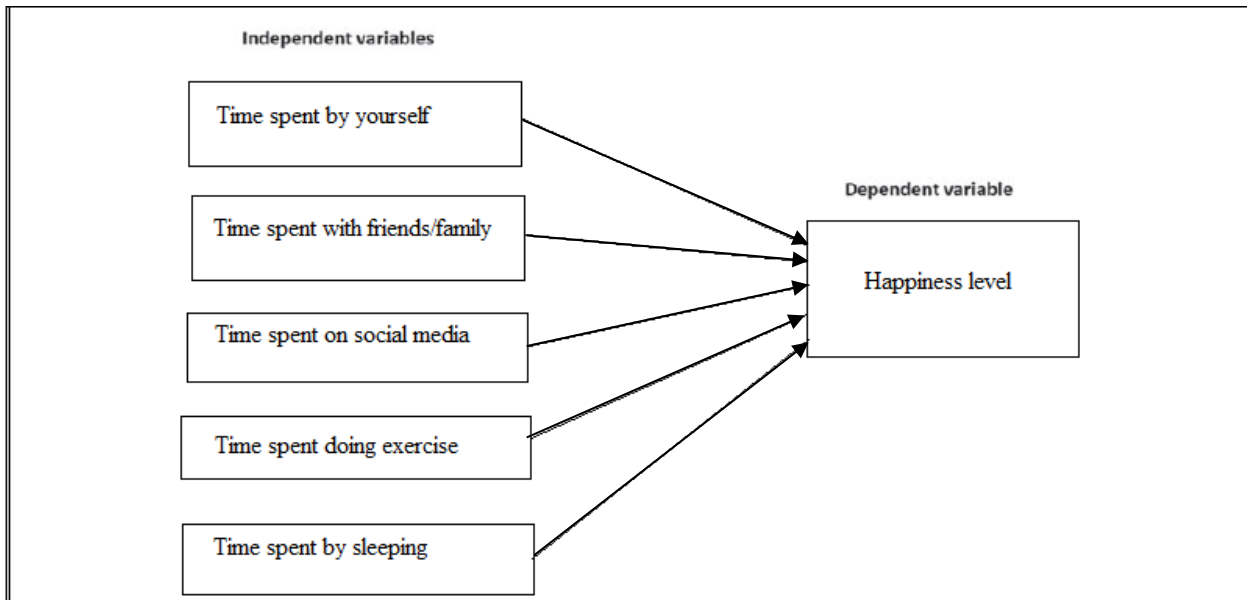


Figure 1. Conceptual Model

DATA, DISCUSSION AND RESULTS

Data: Indicators

The pre-quarantine results provided an interesting insight into the student profiles and the students' life before quarantine. Of the survey takers, 5.9% were 14 and under, 70.6% were 15 to 17, and 23.5% were 18 and over.

During quarantine, the same questions were asked, however, they were asked about their life during quarantine to get comparative data. The following results were received (Table 1).

Table 1. Summary of Data

	Before quarantine	During quarantine
Time spent by themselves	<ul style="list-style-type: none"> - 39.2% of the survey takers spent 3 or fewer hours by themselves. - 37.3% of the survey takers spent 4 hours by themselves. - 23.5% of the survey takers spent 5 or more hours by themselves. 	<ul style="list-style-type: none"> - 21.6% of the survey takers spent 3 or fewer hours by themselves. - 15.7% of the survey takers spent 4 hours by themselves. - 62.7% of the survey takers spent 5 or more hours by themselves.
Time spent with friends/family	<ul style="list-style-type: none"> - 43.1% of the survey takers spent 3 or fewer hours with friends and family. - 29.4% of the survey takers spent 4 hours with friends and family. - 27.5% of the survey takers spent 5 or more hours with friends and family. 	<ul style="list-style-type: none"> - 29.4% of the survey takers spent 3 or fewer hours with friends/family. - 29.4% of the survey takers spent 4 hours with friends/family. - 41.2% of the survey takers spent 5 or more hours with friends/family
Time spent on social media:	<ul style="list-style-type: none"> - 31.4% of the survey takers spent 2 or fewer hours on social media. - 52.9% of the survey takers spent 2 to 5 hours on social media. - 15.7% of the survey takers spent 5 or more hours on social media. 	<ul style="list-style-type: none"> - 13.7% of the survey takers spent 2 or fewer hours on social media. - 19.6% of the survey takers spent 2 to 5 hours on social media. - 66.7% of the survey takers spent 5 or more hours on social media.
Physical activity	<ul style="list-style-type: none"> - 27.5% of the survey takers got 30 minutes or less exercise. - 29.4% of the survey takers got 30 minutes to 1 hour of exercise. - 43.1% of the survey takers got 1 or more hours of exercise. 	<ul style="list-style-type: none"> - 21.6% of the survey takers got 30 minutes or fewer exercise. - 41.2% of the survey takers got 30 minutes to 1 hour of exercise. - 37.3% of the survey takers got 1 or more hours of exercise.
Sleep	<ul style="list-style-type: none"> - 37.3% of the survey takers got 6 or fewer hours of sleep. - 49% of the survey takers got 6 to 8 hours of sleep. - 13.7% of the survey takers got 8 or more hours of sleep. 	<ul style="list-style-type: none"> - 21.6% of the survey takers got 6 or fewer hours of sleep. - 39.2% of the survey takers got 6 to 8 hours of sleep. - 39.2% of the survey takers got 8 or more hours of sleep.

Data: Happiness Levels

The participants were asked to respond to the question: "Rate your happiness level from 0-10" before the quarantine and during the quarantine.

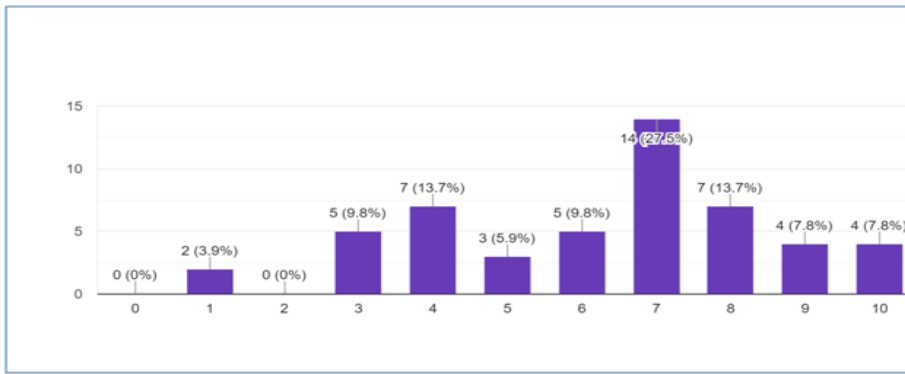


Figure 2. Histogram of happiness levels before quarantine (n=51).

The mean for the happiness level before quarantine is 6.27 with a standard deviation of 2.30, and the mean for the happiness level during quarantine is 5.31 with a standard deviation of 2.73.

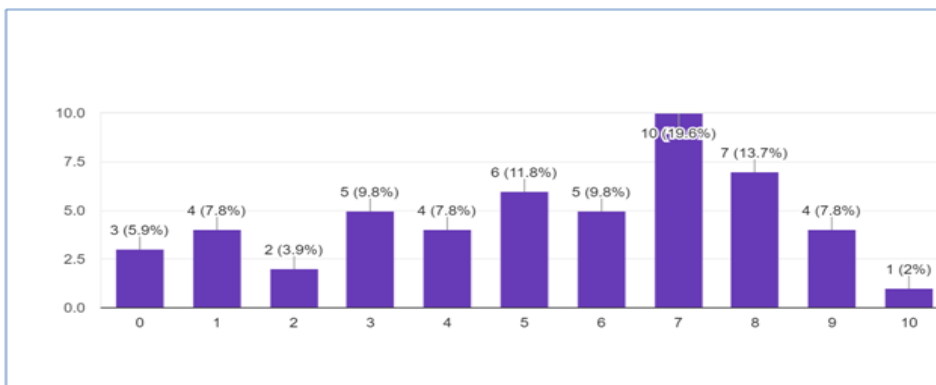


Figure 3. Histogram of happiness levels during quarantine (n=51).

Among the 51 responses received, the author found that 23 subjects have seen their happiness level go down by 2 or more, 13 subjects have seen their happiness level increase by 2 or more, and 15 had insignificant change. The responses with significant decrease and increase in happiness were further analyzed, and the following results were found (Table 3).

Highest number increase in social media use was observed in less happy young adults. It appears that using social media at home instead of socializing outdoors, makes young adults less happy.

Table 3. Significant decrease and increase in happiness levels per indicator

The Change in Time Spent	23 Less Happy Responses	13 More Happy Responses
By Yourself	12↑ 7↓ 4<	8↑ 2↓ 3<
With Friends/Family	8↑ 9↓ 6<	9↑ 1↓ 3<
On Social Media	18↑ 1↓ 4<	7↑ 2↓ 4<
Physical Activity	7↑ 10↓ 6<	3↑ 6↓ 4<
Sleeping	12↑ 5↓ 6<	6↑ 2↓ 5<

Note: ↑: more time spent; ↓: less time spent, <: no change.

Note: The Change in Time Spent = Time Spent during quarantine minus Time Spent before quarantine.

Results

Before the quarantine, a low positive correlation (0.273) was found between spending time with friends/family and happiness level (Table 4). Surprisingly, spending time on social media (-0.009) was weakly and negatively correlated with happiness level (Table 4). These correlations have shown that the respondents prefer face-to-face meetings with friends than getting online news about them.

Table 4. Correlations among the indicators before quarantine

Time Spent	1	2	3	4	5	6
1.By Yourself	1					
2.With Friends/Family	-0.222	1				
3.On Social Media	0.104	-0.009	1			
4.By Physical Activity	-0.090	0.148	-0.032	1		
5. By Sleeping	0.110	-0.280	-0.088	-0.325	1	
6. Happiness Level	0.065	0.273	-0.115	0.091	0.104	1

*p < 0

During the quarantine, a low positive correlation was found between spending time with friends/family and happiness level (Table 5). It is shown that the happiness level related to this indicator has increased during the quarantine. Although with a small increase, spending time by yourself or on social media (-0.064) was again weakly and negatively correlated with happiness level (Table 5).

There was a positive correlation between “spending time by yourself” and happiness level before the quarantine. However, during the quarantine, the correlation has turned into a positive one.

These correlations have shown that respondents had anxiety when they spent time by themselves or online and added that being in online contact with friends did not decrease their level of anxiety. This shows that young adults have had a hard time while trying to cope with the quarantine and added that they yearned for going out and having face-to-face contact with friends.

It is also shown that the effect of physical activity on happiness level was higher ($0.091 > 0.031$) during the quarantine.

Table 5. Correlations among the indicators during quarantine

Time Spent	1	2	3	4	5	6
1. By Yourself	1					
2. With Friends/Family	-0.217	1				
3. On Social Media	0.107	-0.242	1			
4. By Physical Activity	0.103	0.130	-0.302	1		
5. By Sleeping	0.301	-0.023	0.102	-0.102	1	
6. Happiness Level	-0.027	0.333	-0.064	0.031	0.137	1

* $p < 0$

The change in time spent on social media was negatively correlated (-0.251) with change in happiness level while that spent with friends/family was positively (0.257) with it (Table 6). The correlations were found to be low. However; the correlation between each of other indicators with happiness level, i.e. change in time spent by yourself (-0.027), physical activity (0.031) or sleeping (0.137) was found to be weak (Table 6).

Table 6. Correlations among the change in indicators before and during quarantine

The Change in Time Spent	1	2	3	4	5	6
1. By Yourself	1					
2. With Friends/Family	-0.243	1				
3. On Social Media	-0.081	0.041	1			
4. By Physical Activity	0.226	0.069	-0.030	1		
5. By Sleeping	0.278	-0.229	-0.068	-0.259	1	
6. Happiness Level	0.071	0.257	-0.251	0.021	0.060	1

* $p < 0$

Discussion

The strongest correlation among the results, i.e. between happiness level and time spent on social media shows that using social media to actively face the quarantine circumstances have relieved their stress, boredom and anxiety to some degree and increased happiness feelings. This result also supports the findings of Brooks et al. (2020) and Cauberghe et al. (2021). Therefore, one can state that social media use has beneficial effects on young adults' mental health.

Due to social isolation and anxiety during the quarantine, young adults are driven by a need to self-regulate their feelings using social media subconsciously to obtain a more positive and happier mood and optimal level of arousal, as stated by the mechanisms of mood management theory (Robinson and Knobloch-Westerwick, 2017). Our findings are also consistent with this theory.

According to our findings, the second strongest correlation of happiness level was observed with time spent with friends/family (0.269). This result is consistent with Faccioli et al. (2021)'s finding, i.e. young adults' increased time spent with family members (64.2%).

Of the 13 more happy responses 54% were spending more time on social media, with the remaining spending the same as before or less time on social media. This is in stark contrast with the 23 less happy responses where 78% were spending more time on social media. This shows that social media may be an inferior substitute for quality social activity with friends and family.

Of the 13 more happy responses 69% were spending more time with their friends and family, whereas of the 23 less happy responses, 65% were spending less or equal time with their friends and family. This shows an increased benefit from family time. Spending quality time with friends and family may have a beneficial influence on young adults' happiness by reducing the attention on negative feelings.

In addition, the people who reported the less happy responses were spending more time with themselves and added that they had been deprived of their social contacts and as such they had become more reclusive and had reduced their level of happiness.

Of the 13 more happy responses 8 had spent more time with themselves so this meant that they had had more time for self reflection and on their own account.

Of the 13 responses that reported an increase in happiness 9 people have been spending more time with their families and friends. This means that more people were happy to spend an increased amount of time with their close relations and had experienced an increase in their personal level of happiness.

CONCLUSION

This study assesses the effects of quarantine during the COVID-19 pandemic on young adults living in the San Francisco Bay area. It shows the changes in their time spent before and during the pandemic.

The strongest correlation of happiness level is observed with the following two variables: Time spent on social media (-0.251) and time spent with friends/family (0.257). The change in the time spent alone, time spent by physical activity and time spent by sleeping yielded no correlation with the change in happiness level.

If quarantine has to be necessarily implemented, it is crucial that its rationale is based on scientific evidence, well-justified and reasonable, with well-thought strategic policies and protocols. Sociologists and psychologists must work together to provide young adults with motivational factors to increase their happiness levels during quarantine. Since young adults are at the peak of their life-time energy levels, these motivational factors must be organized in such a way to minimize their psychological stress.

The limitation of this research was the low sample size. The results might have been different with n=100 or higher.

It should be noted that different results may be obtained in other geographical areas in the US. Factors such as strictness of quarantine measures, age, gender and level of self-discipline may also affect the results.

Further research should focus on using the same questionnaire to investigate the emotions of young adults after the COVID-19 pandemic.

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