

## Research Article

# Adolescent Well-Being and Coping During COVID-19: A US-Based Survey

Coraal Cohen<sup>1\*</sup>, Gonzalo Cadima<sup>1</sup> and Daniel Castellanos<sup>2</sup>

<sup>1</sup>Commission on Behavioral Health and Drug Prevention, United Way of Broward County, Fort Lauderdale, USA

<sup>2</sup>Departments of Psychiatry & Behavioral Health and Pediatrics, Herbert Wertheim College of Medicine, Florida International University, USA

## Abstract

This study retrospectively reviewed survey data that explored the mental, emotional, social, and physical well-being and coping ability of adolescents in Broward County, Florida during the COVID-19 pandemic. In May 2020, an anonymous online survey was conducted in collaboration with community partners. A convenience sample of 359 adolescents aged 12-21 years (Median = 14 years) in middle or high school—67% female, 50% Black/African American and 36% Hispanic—participated. The most commonly described emotion was “bored”. Although nearly 50% admitted to feeling lonelier, approximately 60% reported that their relationships were about the same and nearly 75% expressed that they had a good support system. More than half found beneficial ways to cope and over 75% felt hopeful about the future. Only 4% initiated or increased substance use. Most adolescents during phase 1 of this pandemic appeared to be resilient and doing as well as before. Targeted, mental health-oriented approaches are recommended as next steps to mitigate impacts on adolescents.

**Keywords:** COVID-19; Coronavirus; Adolescent; Coping; Well-being; Mental health

## Introduction

The coronavirus disease 2019 (COVID-19) pandemic has become one of the biggest crises in modern history. The pandemic has generated a global public health emergency, independent of where people live, their race, and socioeconomic status [1]. The responses required, such as quarantining of entire communities, closing of schools, social isolation, shelter-in-place orders, loss of employment, and money and food shortages have abruptly changed daily life.

The COVID-19 pandemic and its consequences are likely associated with significant effects on mental health and substance use. During the recent outbreak in China, 54% of adult participants of a large online study rated the impact of the outbreak on their mental health as moderate to severe, with depressive symptoms and anxiety being the conditions most often stated. The increase of symptoms or complaints of fear, anxiety, and uncertainty among the different populations in different countries raise the concern about how this may be associated with distressing health systems and nature of COVID-19 illness [2,3]. Brooks and colleagues reviewed the impact of quarantine on psychological health and report that Post-Traumatic Stress Symptoms (PTSS) occur in 28 to 34% and fear in 20% of individuals in quarantine [4]. They also note frequent depression, irritability, anger, insomnia and emotional exhaustion related to quarantine. Horesh & Brown [5] postulate that the COVID-19

pandemic involves numerous characteristics seen in mass traumatic events, so an increase in PTSS during and after the pandemic can be expected.

Pandemic-related mental health risks for children and adolescents have begun to emerge [6]. Children and their parents—since they are more disconnected from their direct support systems, i.e. extended family, childcare, schools, religious groups, and other community organizations—could experience many risks and hidden challenges [7,8]. All family members must cope with the stress of quarantine and social distancing and a re-organization of everyday life. During the early phase, the main impact has been associated with social distancing, major economic implications with resulting financial pressure on many families, and limitations in access to support services [9]. Concerns have been expressed that PTSS and other negative psychological consequences can develop in children, especially related to excessive screen time usage of electronic and social media. Imran and colleagues [10] performed a rapid review of the literature on the impact of quarantine on the mental health of children and adolescents. Their findings suggest that quarantine is associated with a significant negative impact on the psychological well-being of children and adolescents. In addition, and possibly of greater concern, is the finding that this negative psychological effect can still be detected months or years later. They suggest excessive social media usage can make children vulnerable to online predators, cyberbullying, and potentially harmful content [10,11]. The paucity of available literature points towards a detrimental effect of disease-containment measures such as quarantine and isolation on the mental health of children and adolescents. Anxiety, depression, disturbances in sleep and appetite as well as impairment in social interactions are believed to be the most common presentations in children and adolescents [10,12].

The emerging literature on the topic has been derived principally from parental reports on how they perceived changes in their children's emotions and behaviors during the quarantine [13,14]. A preliminary online study conducted in Shaanxi Province in China

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**\*Corresponding author:** Coraal Cohen, Commission on Behavioral Health and Drug Prevention, United Way of Broward County, 1300 South Andrews Avenue, Fort Lauderdale, Florida 33316, USA, Tel: 954.308.9275; E-mail: ccohen@unitedwaybroward.org

during February 2020, indicated that the most common psychological and behavioral problems among 320 youth 3 to 18 years-old were clinginess, distraction, irritability, and fear of asking questions about the epidemic, according to parent report [13]. Another online survey completed by nearly 1,500 parents of Italian, Spanish and Portuguese children aged 3 to 18 reported the most frequent symptom was difficulty concentrating, followed by boredom, irritability, restlessness, nervousness, feelings of loneliness, uneasiness, and worries [14].

Two studies have obtained information directly from adolescents via online surveys. Buzzi and colleagues in Italy surveyed the attitudes and behaviors of 2,064 adolescents. Approximately 2/3 reported worries about the pandemic that were moderate or worse. Their concerns and fears seemed to peak during the first week of detection and then plateaued over time. The authors conclude that adolescents in Italy were remarkably “resilient” with an “excellent ability” to tolerate uncertainty and find “alternative solutions of daily life” [15]. An online survey of 8,079 adolescents in China assessed students’ awareness of COVID-19, and depressive and anxiety symptoms. The prevalence of depressive symptoms, anxiety symptoms, and a combination of depressive and anxiety symptoms was 43.7%, 37.4%, and 31.3%, respectively. The prevalence of depressive and anxiety symptoms was highest for those students in the highest grades. The authors noted the prevalence of anxiety and depressive symptoms can be influenced by sociocultural and economic contexts and needs to be assessed in different countries and regions [16]. In summary, emerging data related to the current COVID-19 pandemic suggest an alarming accumulation of risk factors for mental health problems in children and adolescents: stress, anxiety, depression, irritability, multiple worries, reorganization of family life, economic changes, challenges in access to health services, and disconnection from peer groups, teachers at school, and extracurricular activities [9].

This real-time survey further explored changes in the mental, emotional, social, and physical well-being as well as the coping abilities of a group of US-based adolescents during the COVID-19 pandemic. The aim was to assess challenges during the pandemic self-reported by adolescents and their impact on their mental and physical health. The objective of the survey was to inform prevention and health promotion programs, campaigns, and messaging related to behavioral health and well-being for youth in Broward County, Florida throughout the ongoing pandemic.

## Methods

### Survey Development, Sampling, and Participants

This study retrospectively reviewed real-world survey data collected by United Way of Broward County (UWBC), Florida. UWBC has significant experience performing community needs assessments, leading community strategic planning, building capacity, and developing and implementing communication and dissemination initiatives. Through a data-driven approach, UWBC has been working with the local health, human service, prevention, and treatment communities to integrate systems of care that address mental health protective and risk factors and promote health. Geographically located in southeast Florida, Broward County is the second most populous county in Florida and 17th most populous county in the United States (US). According to 2019 US Census data, Broward County’s population is about 1,952,778 [17].

UWBC conducted an anonymous online survey consisting of twenty-five quantitative and qualitative questions during May 14-26,

2020, about two months into Broward County’s lockdown in response to the pandemic. In coordination with key community partners (the county public school system and an afterschool program), the survey was developed and validated for youth-friendliness with the goal of informing messaging, prevention and promotion programs related to behavioral health and well-being for youth. The survey assessed the effects of the COVID-19 pandemic on multiple dimensions related to adolescent well-being: mental health, substance use, school learning effectiveness, physical health, interpersonal relationships, and coping ability. Question types consisted of 5-point Likert-scale questions with response choices scored from 1-5 for “Strongly Disagree,” “Disagree,” “Neither Agree Nor Disagree,” “Agree,” and “Strongly Agree”; multiple choice questions; and open-ended questions. Four demographic questions were adapted from the 2018 version of the Florida Youth Substance Abuse Survey, a yearly statewide collaborative effort conducted by the Florida departments of Health, Education, and Children and Families [18]. Three hundred and fifty-nine adolescents responded to the survey. Participants were recruited via convenience sampling. Adolescents residing in Broward County, Florida aged 12-21 years in middle or high school were allowed to participate. Recruitment was conducted via UWBC’s youth coalition as well as through the youth-serving organizations and clubs of key study partners associated with or funded by UWBC. Many of these organizations focused on well-being and prevention.

### Data Analysis

Data from the UWBC survey was analyzed by two authors (CC, DC) to provide a descriptive analysis. Survey questions were clustered according to domains assessed by each question. Frequencies were calculated for each possible response to Likert-scale and multiple-choice questions and data were summarized using medians and interquartile range for Likert-scale questions. Qualitative questions to which more than half of participants did not provide meaningful responses were excluded from this analysis. Responses to the remaining qualitative questions were analyzed for content. The most common responses for each question were quantified by frequency, broadly categorized, and clustered into subcategories by relatedness. The Florida International University Office of Research Integrity reviewed the study and determined it was Not Human Subject Research. Therefore, the project did not require submission to and approval from the Institutional Review Board.

## Results

### Demographics

The survey was completed by a diverse sample of adolescents, with 94% identifying as being Black or African American, Hispanic, or Asian, and 20% as being white (Table 1). Approximately two thirds (68%) were female and the group represented all ages from 12 to 21 (Median = 14 years). Two percent of the group was between 19-21 years of age. Participants were affiliated with various youth-serving, primarily well-being-oriented, clubs and programs through the local public-school system (about half) or other organizations.

Survey questions fell into four broad, interrelated domains which contribute to overall wellness: mental health and substance use, physical health, interpersonal relationships, and coping ability (Table 2).

### Mental Health and Substance Use

Over two thirds (69%) agreed or strongly agreed that they were hopeful about the future after the pandemic. Although only

Table 1: Sample Demographics.

Variable	N = 359	
	n	%
<b>Race/Ethnicity</b>		
Black/African American	178	49.6
Spanish/Hispanic/Latino	129	35.9
White/Caucasian	71	19.8
Asian	30	8.4
American Indian/Native American or Native Alaskan	6	1.7
Native Hawaiian or other Pacific Islander	5	1.4
Other	16	4.5
<b>Gender</b>		
Female	243	67.7
Male	113	31.5
Non-binary	4	1.1
<b>Age (years)</b>		
12	55	15.3
13	69	19.2
14	71	19.8
15	23	6.4
16	49	13.6
17	60	16.7
18	25	7.0
19-21	7	1.9
<b>Grade in School</b>		
6	30	8.4
7	84	23.4
8	82	22.8
9	13	3.6
10	37	10.3
11	73	20.3
12	40	11.1

25% agreed or strongly agreed that their mental health had been substantially reduced, 48% indicated they were feeling lonelier as a result of the pandemic. Thirty seven percent of participants felt they were learning worse than they were before the pandemic. An overwhelming majority (96%) reported maintaining or decreasing their previous level of substance use, of which 91% were never-users or non-users who quit before the pandemic. Answers to the two open response questions asking participants how they were feeling during the pandemic revealed the single most commonly reported feeling was boredom (freq = 127). Although positive emotions were reported (freq = 144), adolescents wrote in a greater number of negative emotions (freq = 354). Many reported both negative and positive emotions and more than the requested 2 emotions, suggesting that adolescents may have felt a mix of various emotions in response to the COVID-19 pandemic (Table 3).

### Physical Health

Responses in the physical health domain were generally positive. Only 16% agreed or strongly disagreed that their physical health had been substantially reduced as a result of the pandemic. Most disagreed or strongly disagreed that they were less able to access food (71%) and most indicated that their diet quality had stayed the same or improved (77%) as a result of the COVID-19 pandemic. A smaller majority (56%) reported that their physical activity level had remained the same or increased.

### Interpersonal Relationships

The majority of survey participants reported that their relationships with parents, siblings, and friends were unchanged. However, several reported an improvement in their relationships with parents or legal guardians (28%) and siblings (32%) and a worsening in their relationship with friends (24%) as a result of the pandemic.

### Coping Ability

The responses in the coping ability domain revealed that over half of the group (57%) agreed or strongly agreed that they found helpful ways to cope and most agreed or strongly agreed that they had a good support system (72%) to help them during the pandemic. In contrast, 38% of participants agreed or strongly agreed that their experience during the pandemic had been very challenging. When asked to write in the main ways they had coped during the pandemic, most adolescents indicated they utilized one or more coping strategies (68%). Several different coping strategies were reported, none of which seemed evidently harmful. The most reported individual coping strategies were spending time with family and virtually connecting with friends (freq = 47, 40; Table 3). Most adolescents reported engaging in various, mostly enjoyable activities to cope (freq = 168).

### Discussion

This paper provides insights regarding the mental, emotional, social, and physical impact of the COVID-19 outbreak on youth in the US. To our knowledge, this is the first study that documents the self-reported feelings and perceptions related to the COVID-19 pandemic of a group of predominantly minority adolescents in the US. In contrast to other purely internet-based surveys [15,16], this survey was conducted with other community organizations, such as the public-school system and not-for-profit community organizations.

Our results support that adolescents experience a variety of feelings and emotions. Nearly 50% of the youth admitted to feeling lonelier even though approximately 60% of the group reported that their relationships with family, siblings and friends were about the same and nearly 75% expressed that they had a good support system during the pandemic. Although greater than a third of these youth felt the pandemic was very challenging, 56% found beneficial ways to cope and greater than 75% felt positive about the future. It is possible that this group of predominantly African American and Hispanic youth already were engaged in stable, supportive social relationships but felt lonelier due to the limitations to face to face contact. Not surprisingly, the surveyed adolescents also reported a mixture of emotions through the free-response questions. The single most common emotion described by the adolescents was "bored." Although "bored" as a singular response was the most common, most of the other emotions reported by participants were negative (freq = 354), with the majority within this group being anxiety spectrum responses (stressed, worried, anxious, scared, overwhelmed). Over the last decade, there has been much scientific research looking into the nature of boredom [19,20], much of it seeking to understand boredom along negative (unpleasant, indifferent, apathetic) or positive (seeking, activating) dimensions. Boredom is an emotion that is nuanced; it can be a negative feeling but in certain circumstances can result in positive consequences. The limitations of our survey design do not permit us to understand the qualitative aspect of the adolescents' descriptions of feeling bored.

An encouraging finding was that the great majority of this cohort (91%) did not report de novo use or an increase in the use of nicotine, alcohol or drugs. The 4% of the adolescents who started or increased substance use to cope with stress or emotions related to COVID-19 is significantly less than the 13.3% recently reported for the adult population [21]. Peer, school, and community engagement are known protective factors for youth substance use [22,23]. It is possible that our findings are a positive reflection of our sample being primarily

Table 2: Well-Being Factors by Domain.

Survey Item	N = 359		Median	IQR
	n	%		
<b>MENTAL HEALTH &amp; SUBSTANCE USE</b>				
<b>I am hopeful about the future after COVID-19.</b>			4	3-5
Strongly Disagree	10	2.8		
Disagree	21	5.8		
Neither Agree nor Disagree	82	22.8		
Agree	143	39.8		
Strongly Agree	103	28.7		
<b>COVID-19 has substantially reduced my mental health.</b>			3	2-4
Strongly Disagree	50	13.9		
Disagree	92	25.6		
Neither Agree nor Disagree	126	35.1		
Agree	66	18.4		
Strongly Agree	25	7		
<b>I am feeling lonelier as a result of COVID-19.</b>			3	2-4
Strongly Disagree	45	12.5		
Disagree	65	18.1		
Neither Agree nor Disagree	76	21.2		
Agree	116	32.3		
Strongly Agree	57	15.9		
<b>I am learning _____ I was before COVID-19.</b>			--	--
Better than	60	16.7		
About the same as	168	46.8		
Worse than	131	36.5		
<b>My use of vapes, tobacco, marijuana, alcohol, and/or other substances has _____ as a result of COVID-19.</b>			--	--
Increased	14	3.9		
Stayed the same	15	4.2		
Stopped using before COVID-19 and still do not use	19	5.3		
Never used before COVID-19 and still do not use	309	86.1		
Decreased	2	0.6		
<b>During COVID-19, I have felt: (open-ended, see Table 3)</b>	--	--	--	--
<b>PHYSICAL HEALTH</b>				
<b>I am less able to access enough food as a result of COVID-19.</b>			2	1-3
Strongly Disagree	125	34.8		
Disagree	130	36.2		
Neither Agree nor Disagree	66	18.4		
Agree	32	8.9		
Strongly Agree	6	1.7		
<b>The quality of my diet has _____ as a result of COVID-19:</b>			--	--
Improved	72	20.1		
Stayed the same	206	57.4		
Worsened	81	22.6		
<b>My level of physical activity has _____ as a result of COVID-19:</b>			--	--
Increased	101	28.1		
Stayed the same	100	27.9		
Decreased	158	44		
<b>COVID-19 has substantially reduced my physical health.</b>			3	2-3
Strongly Disagree	53	14.8		
Disagree	97	27		
Neither Agree nor Disagree	150	41.8		
Agree	40	11.1		
Strongly Agree	19	5.3		
<b>INTERPERSONAL RELATIONSHIPS</b>				
<b>My relationship with my parents (or legal guardians, if different than your biological parents) has _____ as a result of COVID-19:</b>			--	--
Improved	100	27.9		
Stayed the same	235	65.5		
Worsened	24	6.7		
<b>My relationship with my siblings has _____ as a result of COVID-19:(% calculated from N=324 who had siblings.)</b>			--	--
Improved	103	31.8		
Stayed the same	198	61.1		
Worsened	23	7.1		
I do not have siblings	35	--		
<b>My relationship with friends has _____ as a result of COVID-19:</b>			--	--
Improved	58	16.2		
Stayed the same	215	59.9		
Worsened	86	24		
<b>COPING ABILITY</b>				
<b>My experience during COVID-19 has been very challenging.</b>			3	2-4
Strongly Disagree	32	8.9		
Disagree	66	18.4		
Neither Agree nor Disagree	124	34.5		
Agree	98	27.3		
Strongly Agree	39	10.9		
<b>I have found ways to cope (or deal with the situation) which have helped me during COVID-19.</b>			4	3-4
Strongly Disagree	13	3.6		

Disagree	28	7.8		
Neither Agree nor Disagree	113	31.5		
Agree	143	39.8		
Strongly Agree	62	17.3		
<b>I have a good support system to help me during this time of COVID-19.</b>			4	3-5
Strongly Disagree	12	3.3		
Disagree	13	3.6		
Neither Agree nor Disagree	75	20.9		
Agree	147	40.9		
Strongly Agree	112	31.2		
<b>The main ways I have coped (or dealt with the situation) are: (open-ended, see Table 3)</b>	--	--	--	--

Table 3: Feelings and Coping Strategies.

Description	Frequency	Subtotals	Totals
<b>During COVID-19, I have felt:</b>			
<b>Unspecified</b>			
Bored	127		127
<b>Negative</b>			
Stressed	48		
Worried	29		
Anxious	20		
Scared	23		
Overwhelmed	23	(143)	
Sad	76		
Depressed	15		
Lonely	21	(112)	
Annoyed	20		
Frustrated	15		
Angry	15	(50)	
Tired	31		
Unmotivated/lazy	18	(49)	354
<b>Positive</b>			
Happy	48		
Good	21		
Okay	20		
Fine	24		
Relaxed/calm	31		144
<b>The main ways I have coped (or dealt with the situation) are:</b>			
<b>No Strategy</b>			
None	113		113
<b>Socializing</b>			
Spending time with family	47		
Connecting with friends (virtually)	40		87
<b>Activities</b>			
Watching TV/videos	36		
Completing schoolwork	28		
Physical activities	23		
Sleeping	18		
Playing video games	18		
Creating art	17		
Listening to music	16		
Reading	12		168
<b>Self-Help</b>			
Managing time	14		
Speaking with a counselor	7		21

comprised of adolescents involved with different clubs and programs oriented to enhance well-being and prosocial behaviors. These “protective” behaviors of abstaining from using e-cigarettes may have a significant positive public health consequence. Various groups have warned about the potential “alarming” risks of vaping during the pandemic, specifically that vaping may increase the risk of acquiring the COVID-19 infection [24-27].

The real-world data from this survey helped inform prevention and health promotion program planning for pertinent sectors,

including but not limited to: law enforcement, academic institutions, the Department of Health, funders of social services, youth prevention and treatment programs, the county school board and parent associations. The results were utilized to create a county-wide educational/marketing campaign targeting youth risk/protective factors “It’s OK to not be OK” [28]. The survey results also helped inform United Way of Broward County, Florida and multiple community stakeholders in modifying and enhancing existing program structures, information dissemination, capacity building, campaigns and educational materials expected to reach over 1,000,000 county residents.

Our study is not without limitations. Our retrospective review of the survey records involved the analysis of data that were originally collected for reasons other than research. A number of limitations can exist with the collection of the “real-world” data utilized in our study. Oversight of the quality of data, incomplete databases, and more chances of bias and confounding can occur. Due to the convenience sampling methodology used, caution should be used when generalizing these results to the general youth population. The adolescents in this sample were involved in various community-based groups providing supports; so, the impact of the pandemic on mental health and substance use may be higher in the general population. In addition, the survey design did not permit more in-depth examination of the influence of race and ethnicity in this sample. Due to these limitations, our data should not be used as stand-alone evidence. Further research is needed to expand and explore a broader sample of this diverse US-adolescent population and the effects of the COVID-19 pandemic on their multi-dimensional well-being and behavioral health risk and protective factors.

These survey results suggest that most adolescents during phase 1 of this pandemic (May 2020) appeared to be resilient and doing as well as they were before. The well-being domain with the greatest need for improvement seemed to be mental-emotional health. One strategy for moving forward based on these data is for organizations to use targeted approaches to determine which of the youth they serve need more support and what type of support to provide (e.g. promoting healthy coping mechanisms, providing interesting engagement opportunities to combat boredom, offering additional learning support services to decrease stress). More information is warranted to identify if challenges adolescents face and their coping strategies, as well as approaches needed to support adolescents, vary depending on the phase of the pandemic. These support approaches should also seek to meet the potentially unique needs of disparate groups of young people.

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