Supplemental Online Content

This supplemental material has been provided by the authors to give readers additional information about their work.

eMethods

ABCD population cohort overview

The first wave of the ABCD collection offered profiling from 11,875 children aged 9-10 from 21 different sites located in 17 different states, collected from 2016 to 2018. The ABCD initiative was specifically intended to be a cohort that is diverse in gender, race and ethnicity, socioeconomic status, and urbanicity[1]. Primary exclusion criteria include major medical or neurological conditions, gestational age <28 weeks or birthweight below 1200g, magnetic resonance imaging (MRI) contraindications, having a parent who is not fluent in English or Spanish, history of traumatic brain injury, current diagnosis of schizophrenia, moderate/severe autism spectrum disorder, intellectual disability or substance use disorder at enrollment. Participants undergo comprehensive biennial assessments, as well as more limited interim assessments, across 10 years. ABCD Wave I and COVID-19 data were downloaded via the National Institute of Mental Health Data Archive (Data Archive Recipient #6089).

Baseline characteristic of the family system: pre-pandemic assessments

ABCD's baseline assessment includes comprehensive measures across child and parent domains: demographic and socioeconomic measures; measures of child mental health (e.g., Parent Child Behavior Checklist) and substance use; detailed family histories; trait measures of child personality and temperament (e.g., impulsivity scales); neurocognitive performance; child behaviors (e.g., digital media use, involvement in sports); child physical development; and child culture and environment (e.g., acculturation scales and family environment scales)[1-6]. These and other indicators were captured at baseline using >6,000 deep profiling assessments (corresponding to >17,000 individual items). All these measures—together defining baseline, pre-pandemic family features—were entered into our multivariate pattern analysis (additional details in analysis section below). A complete list of ABCD assessments can be found at https://abcdstudy.org/scientists/protocols/. For additional details on ABCD protocol development and procedures, see[1-6]. Demographic characteristics are shown in eTable 1, below.

Mid-pandemic characteristics of the family system: COVID-19 assessments

Complete COVID-19 questionnaires are provided in eTables 2 & 3, below.

eTable 1 – Demographic characteristics of youth with and without COVID-19 assessment data

Characteristic	Total (N=11,875)	COVID-19 data (N=9,267)	No COVID-19 data (N=2,608)
Age (months), mean(SD)[range]	118.98 (7.50)	118.96 (7.49)	119.05 (7.50)
Sex, N(%)			
Male	52.16%	52.20%	52.05%
Female	47.84%	47.80%	47.95%
Race, N(%)			
White	63.35%	68.11%	50.47%
Black	15.73%	12.57%	28.21%
Asian	2.32%	2.52%	1.77%
AIAN/NHPI	0.66%	0.51%	1.22%
Other	4.42%	3.87%	6.69%
Mixed	12.07%	12.42%	11.64%
Parent Education, N(%)			
< HS diploma	2.50%	1.52%	5.98%
HS diploma/GED	4.77%	3.74%	8.44%
Some college	12.98%	11.60%	17.87%
Bachelor	12.71%	13.88%	8.53%
Post grad degree	17.04%	19.26%	9.18%
Household income, N(%)			
<50K	14.84%	12.12%	25.27%
>=50K and <100K	14.14%	14.82%	11.54%
>100K	21.02%	23.06%	13.19%

eTable 2 – ABCD Child COVID-19 Assessments

subjectkey	The NDAR Global Unique Identifier (GUID) for research subject
src_subject_id	Subject ID how it's defined in lab/project
interview_date	Date on which the interview/genetic test/sampling/imaging/biospecimen was completed. MM/DD/YYYY
interview_age	Age in months at the time of the interview/test/sampling/imaging.
sex	Sex of the subject
eventname	The event name for which the data was collected
afraid_against_mask_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations against wearing masks? : Afraid:
afraid_anti_mask	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio against wearing masks? Afraid:
afraid_anti_mask_4_cv	How did you feel when you attended the in-person demonstrations against wearing masks?Afraid:
afraid_blm_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for Black Lives Matter?Afraid:
afraid_blm_4_cv	How did you feel when you attended the in-person demonstrations for Black Lives Matter? Afraid:
afraid_blm_cv	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio for Black Lives Matter? Afraid:
afraid_pro_po_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for support for police (pro-police)? Afraid:
afraid_pro_po_4_cv	How did you feel when you attended the in-person demonstrations for pro-police? Afraid:
afraid_pro_po_cv	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio for support for police (pro-police)? Afraid:
afraid_reopen_bus_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for reopening of businesses? Afraid:
afraid_reopen_bus_4_cv	How did you feel when you attended the in-person demonstrations for reopening of businesses? Afraid:
afraid_reopen_bus_cv	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio for reopening of businesses? Afraid:

against_mask_social_media_cv	Since April 2020, how often did you scroll, write, or post to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for against wearing mask?
against_mask_time_cv	Since April 2020, how much time did you spend, on average, watching TV stories, looking on the internet, or listening to news on the radio about demonstrations against wearing masks?
angry_against_mask_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations against wearing masks? :Angry:
angry_anti_mask_4_cv	How did you feel when you attended the in-person demonstrations against wearing masks? Angry:
angry_anti_mask_cv	How did you feel having your parent(s) attend the against wearing masks demonstration(s) without you? Angry:
angry_blm_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for Black Lives Matter? Angry:
angry_blm_4_cv	How did you feel when you attended the in-person demonstrations for Black Lives Matter? Angry:
angry_blm_cv	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio for Black Lives Matter? Angry:
angry_pro_po_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for support for police (pro-police)? Angry:
angry_pro_po_4_cv	How did you feel when you attended the in-person demonstrations for pro-police? Angry:
angry_pro_po_cv	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio for support for police (pro-police)? Angry:
angry_reopen_bus_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for reopening of businesses? Angry:
angry_reopen_bus_4_cv	How did you feel when you attended the in-person demonstrations for reopening of businesses?Angry:
angry_reopen_bus_cv	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio for reopening of businesses? Angry:
anti_mask_2_cv	Since April 2020, did you scroll, write, or post to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations (public marches, rallies) for: : Against wearing masks
anti_mask_3_cv	Since April 2020, do you know people who attended a public demonstration (public marches, rallies) without you for: Against wearing masks
anti_mask_4_cv	Since April 2020, how many demonstrations (public marches, rallies) have you attended in-person for:Against wearing masks

anti_mask_cv	Since April 2020, did you watch TV stories, look on the internet, or listen to news on the radio about public demonstrations (public marches, rallies) on: Against wearing masks
anti_mask_demo_help_cv	When you attended the in-person demonstrations against wearing masks, did you see...Demonstrator helping or protecting a demonstrator
anti_mask_friends_cv	Who attended a public demonstration without you against wearing masks? Friends:
anti_mask_neigh_cv	Who attended a public demonstration without you against wearing masks? Neighbors:
anti_mask_parents_cv	Who attended a public demonstration without you against wearing masks?Parents:
anti_mask_po_force_cv	When you attended the in-person demonstrations against wearing masks, did you see...Force by police (pushing, shoving or use of tear gas)
anti_mask_po_help_cv	When you attended the in-person demonstrations against wearing masks, did you see...Police helping or protecting a demonstrator
anti_mask_sib_cv	Who attended a public demonstration without you against wearing masks? Siblings:
anti_mask_violence_cv	When you attended the in-person demonstrations against wearing masks, did you see. . . Violence by demonstrators (throwing rocks, bottles at police, destroying property)
assist_sched_cv	How many days did your parents:Assist you with managing school schedule
attentive_y_cv	Please rate how each item describes you now or within the past week: I felt attentive (that is, alert or able to pay attention)
bedtime_routine_cv	Over the past week:I kept a bedtime routine (that is, I usually did the same thing each night before bed)...
blm_2_cv	Since April 2020, did you scroll, write, or post to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations (public marches, rallies) for: Black Lives Matter
blm_3_cv	Since April 2020, do you know people who attended a public demonstration (public marches, rallies) without you for: Black Lives Matter
blm_4_cv	Since April 2020, how many demonstrations (public marches, rallies) have you attended in-person for:Black Lives Matter
blm_cv	Since April 2020, did you watch TV stories, look on the internet, or listen to news on the radio about public demonstrations (public marches, rallies) on: Black Lives Matter
blm_demo_help_cv	When you attended the in-person demonstrations for Black Lives Matter, did you see...Demonstrator helping or protecting a demonstrator
blm_friends_cv	Who attended a public demonstration without you for Black Lives Matter? Friends:
blm_neigh_cv	Who attended a public demonstration without you for Black Lives Matter? Neighbors:

blm_parents_cv	Who attended a public demonstration without you for Black Lives Matter? Parents:
blm_po_force_cv	When you attended the in-person demonstrations for Black Lives Matter, did you see...Force by police (pushing, shoving or use of tear gas)
blm_po_help_cv	When you attended the in-person demonstrations for Black Lives Matter, did you see...Police helping or protecting a demonstrator
blm_sib_cv	Who attended a public demonstration without you for Black Lives Matter? Siblings:
blm_social_media_cv	Since April 2020, how often did you scroll, write, or post to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for Black Lives Matter?
blm_time_cv	Since April 2020, how much time did you spend, on average, watching TV stories, looking on the internet, or listening to news on the radio about demonstrations related to Black Lives Matter?
blm_violence_cv	When you attended the in-person demonstrations for Black Lives Matter, did you see...Violence by demonstrators (throwing rocks, bottles at police, destroying property)
calm_y_cv	Please rate how each item describes you now or within the past week. I felt calm
check_hw_cv	How many days (0 to 7) did your parents: Check homework and assignments with you
concentrate_y_cv	Please rate how each item describes you now or within the past week. I felt able to concentrate
confident_y_cv	Please rate how each item describes you now or within the past week. I felt confident
coverage_cv	The following questions ask about your use of different forms of media (television, social media, and other internet sources) to check for news related to the coronavirus pandemic in the past week.How often did you view television media coverage (e.g., news stations) of coronavirus?
create_asgn_act_cv	How many days (0 to 7) did your parents:Create assignments and activities beyond what your school assigned
delighted_y_cv	Please rate how each item describes you now or within the past week. I felt delighted
demo_affect_life_cv	Being afraid of an illness or virus has gotten in the way of enjoying my life (e.g. caused fights in my house, kept me from connecting with others, made me feel isolated or hopeless about the future, etc.).
demo_afraid_cv	Being afraid of an illness or virus has caused me to feel very strong emotions in my body (e.g. anger, anxiety, sadness, irritable feelings, etc.).
demo_avoid_news	I avoid news or information about bad illnesses or viruses
demo_exercise_cv	I exercise or play outside
demo_friends_cv	How has the frequency of your communication changed during this time with friends?

demo_hand_sanitizer_cv	I use Purell/other hand sanitizer
demo_mask_coverage_cv	I wear a mask over my face or protective gear (e.g. gloves, things to cover my clothes)
demo_online_cv	How has the frequency of your on-line communication changed?
demo_parents_cv	How has the frequency of your communication changed during this time with parents?
demo_schoolwork_on_comp_cv	I do schoolwork on a computer
demo_siblings_cv	How has the frequency of your communication changed during this time with siblings?
demo_stayed_away_cv	I stay away from people (other than those who live in my house)
demo_stayed_indoors_cv	I stay away from people inside my house (e.g., stay in another room or a certain distance away)
demo_tone_friends_cv	How has the tone of your communication changed during this time with friends?
demo_tone_parents_cv	How has the tone of your communication changed during this time with parents?
demo_tone_siblings_cv	How has the tone of your communication changed during this time with siblings?
demo_touching_people_cv	I avoid touching people (e.g., hugging, shaking hands)
demo_touching_things_cv	I avoid touching things (e.g., phone, doorknobs)
demo_wash_hands_cv	I wash my hands at times other than just after I use the bathroom or before eating
demo_wipes_cv	I use Clorox/cleaners to wipe down surfaces
ease_y_cv	Please rate how each item describes you now or within the past week. I felt at ease (Definition: relaxed, comfortable)
energetic_y_cv	Please rate how each item describes you now or within the past week. I felt energetic
enjoy_school_y_cv	How much did you enjoy school/school-at-home in the past week:
enjoyed_school_wk_y_cv	How much did you enjoy school?
enthusiastic_y_cv	Please rate how each item describes you now or within the past week. I felt enthusiastic (Definition: very excited)
exp_rac_disc_cv	Over the past week:I experienced racism or discrimination in relation to coronavirus...
fam_act_cv	Over the past week:I participated in family activities...
feel_afraid_anti_mask_2_cv	How did you feel having your sibling(s) attend the against wearing masks demonstration(s) without you? Afraid:
feel_afraid_anti_mask_cv	How did you feel having your parent(s) attend the against wearing masks demonstration(s) without you? Afraid:

feel_afraid_blm_2_cv	How did you feel having your sibling(s) attend the Black Lives Matter demonstration(s) without you? Afraid:
feel_afraid_blm_cv	How did you feel having your parent(s) attend the Black Lives Matter demonstration(s) without you? Afraid:
feel_afraid_po_2_cv	How did you feel having your sibling(s) attend the support for police (pro-police) demonstration(s) without you? Afraid:
feel_afraid_po_cv	How did you feel having your parent(s) attend the support for police (pro-police) demonstration(s) without you? Afraid:
feel_afraid_reopen_bus_2_cv	How did you feel having your sibling(s) attend the reopening businesses demonstration(s) without you? Afraid:
feel_afraid_reopen_bus_cv	How did you feel having your parent(s) attend the reopening businesses demonstration(s) without you? Afraid:
feel_proud_anti_mask_2_cv	How did you feel having your sibling(s) attend the against wearing masks demonstration(s) without you? Proud:
feel_proud_anti_mask_cv	How did you feel having your parent(s) attend the against wearing masks demonstration(s) without you? Proud:
feel_proud_blm_2_cv	How did you feel having your sibling(s) attend the Black Lives Matter demonstration(s) without you? Proud:
feel_proud_blm_cv	How did you feel having your parent(s) attend the Black Lives Matter demonstration(s) without you? Proud:
feel_proud_po_2_cv	How did you feel having your sibling(s) attend the support for police (pro-police) demonstration(s) without you? Proud:
feel_proud_po_cv	How did you feel having your parent(s) attend the support for police (pro-police) demonstration(s) without you?Proud:
feel_proud_reopen_bus_2_cv	How did you feel having your sibling(s) attend the reopening businesses demonstration(s) without you? Proud:
feel_proud_reopen_bus_cv	How did you feel having your parent(s) attend the reopening businesses demonstration(s) without you? Proud:
felt_alone_cv	In the past week. . . : I felt alone
felt_always_sad	In the past week. . . : I could not stop feeling sad
felt_angry_cv	In the past week. . . I felt angry or frustrated

felt_cv	In the past week. . . : I felt like I couldn't do anything right
felt_life_went_wrong_cv	In the past week. . . : I felt everything in my life went wrong
felt_lonely_cv	In the past week. . . : I felt lonely
felt_nervous_cv	In the past week. . . : I felt nervous
felt_no_fun_cv	It was hard for me to have fun
felt_sad_cv	In the past week. . . : I felt sad
felt_scared_cv	In the past week. . . : I felt scared
felt_unhappy_cv	In the past week. . . : I felt unhappy
hopeful_against_mask_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations against wearing masks? :Hopeful:
hopeful_anti_mask	How did you feel having your parent(s) attend the against wearing masks demonstration(s) without you? Hopeful:
hopeful_anti_mask_4_cv	How did you feel when you attended the in-person demonstrations against wearing masks? Hopeful:
hopeful_blm_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for Black Lives Matter? Hopeful
hopeful_blm_4_cv	How did you feel when you attended the in-person demonstrations for Black Lives Matter? Hopeful:
hopeful_blm_cv	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio for Black Lives Matter? Hopeful:
hopeful_pro_po_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for support for police (pro-police)? Hopeful:
hopeful_pro_po_4_cv	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio for support for police (pro-police)? Hopeful:
hopeful_pro_po_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for reopening of businesses? Hopeful:
hopeful_reopen_bus_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for reopening of businesses? Hopeful: (round4)
hopeful_reopen_bus_4_cv	How did you feel when you attended the in-person demonstrations for reopening of businesses? Hopeful:
hopeful_reopen_bus_cv	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio for reopening of businesses? Hopeful:

hopeful_y_cv	How hopeful are you that the coronavirus/COVID-19 crisis in your area will end soon?
hours_language_cv	In the past week on an average weekday, how many hours per day did you spend doing school or school-like activities, including online or in-person school?Language Arts
hours_math_cv	In the past week on an average weekday, how many hours per day did you spend doing school or school-like activities, including online or in-person school?Math
hours_other_cv	In the past week on an average weekday, how many hours per day did you spend doing school or school-like activities, including online or in-person school?Other
hours_reading_cv	In the past week on an average weekday, how many hours per day did you spend doing school or school-like activities, including online or in-person school?Reading
hours_science_cv	In the past week on an average weekday, how many hours per day did you spend doing school or school-like activities, including online or in-person school?Science
hours_social_cv	In the past week on an average weekday, how many hours per day did you spend doing school or school-like activities, including online or in-person school?Social Studies
inspired_against_mask_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations against wearing masks? : Inspired:
inspired_anti_mask	How did you feel having your parent(s) attend the against wearing masks demonstration(s) without you? Inspired:
inspired_anti_mask_4_cv	How did you feel when you attended the in-person demonstrations against wearing masks? Inspired:
inspired_blm_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for Black Lives Matter? Inspired
inspired_blm_4_cv	How did you feel when you attended the in-person demonstrations for Black Lives Matter? Inspired:
inspired_blm_cv	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio for Black Lives Matter? Inspired:
inspired_pro_po_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for support for police (pro-police)? Inspired:
inspired_pro_po_4_cv	How did you feel when you attended the in-person demonstrations for pro-police? Inspired:
inspired_pro_po_cv	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio for support for police (pro-police)? Inspired:
inspired_reopen_bus_2_cv	How did you feel when you scrolled, wrote, or posted to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for reopening of businesses? Inspired:

inspired_reopen_bus_4_cv	How did you feel when you attended the in-person demonstrations for reopening of businesses? Inspired:
inspired_reopen_bus_cv	How did you feel when you saw or heard about the demonstrations on the TV, internet, or radio for reopening of businesses? Inspired:
interested_y_cv	Please rate how each item describes you now or within the past week. I felt interested
life_change_y_cv	How much do you think your life has changed due to coronavirus (COVID-19)?
mctq_fd_awakening_min_cv	Report on your typical sleep behavior over the past week. : Altogether, these awakenings last _____minutes.
mctq_fd_btime_cv	Report on your typical sleep behavior over the past week. : I go to bed at:
mctq_fd_min_to_get_up_cv	Report on your typical sleep behavior over the past week. : After_____minutes I get up.
mctq_fd_min_to_sleep_cv	Report on your typical sleep behavior over the past week. : I need_____minutes to fall asleep.
mctq_fd_num_wake_up_cv	Report on your typical sleep behavior over the past week. : After falling asleep, I wake up_____times during the night.
mctq_fd_time_asleep_cv	Report on your typical sleep behavior over the past week. : I actually start trying to fall asleep at:
mctq_fd_wake_up_time_cv	Report on your typical sleep behavior over the past week. : I wake up at:
mctq_schedule_time_cv	Report on your typical sleep behavior over the past week. : I start my school work at:
mental_health_cv	How do you think your mental health (emotional well-being) is in the past week compared to normal?
missing_school_cv	How worried are you about missing school in-person?
mod_phys_act_hour_2_cv	How much time did you usually spend doing moderate or vigorous physical activities on one of those days? for round 3 and 4
mod_phys_act_hour_cv	How much time did you usually spend doing moderate or vigorous physical activities on one of those days?
mod_phys_act_min_cv	How much time did you usually spend doing moderate or vigorous physical activities on one of those days? Minutes
money_cv	Over the past week:I worried that my family would not have enough money to pay for necessities like clothing or bills...
news_update_cv	How often did you check for coronavirus news and updates using the internet (e.g. YouTube)? Do not include checking social media.

online_arts_cv	In the past week on an average weekday, how many hours per day did you spend doing school or school-like activities, including online or in-person school? : Reading/Language Arts/Social Studies:
online_other_cv	In the past week on an average weekday, how many hours per day did you spend doing school or school-like activities, including online or in-person school?: Other:
online_science_cv	In the past week on an average weekday, how many hours per day did you spend doing school or school-like activities, including online or in-person school?: Math/Science:
others_worry_y_cv	How worried have others around you been about coronavirus (COVID-19)?
outdoor_act_cv	Over the past week: I did outdoor activities...
parent_involve_school_cv	In the past week, about how many days per week was a parent (or other adult taking care of you) involved with your schoolwork?
parent_involved_school_cv	In the past week, about how many days per week was a parent (or other adult taking care of you) involved with your school work?
parent_monitor_q1_y_cv	About your life over the past week: How often do your parents/guardians know where you are?
parent_monitor_q3_y_cv	About your life over the past week:If you are at home when your parents or guardians are not, how often do you know how to get in touch with them?
parent_monitor_q4_y_cv	About your life over the past week:How often do you talk to your mom/dad or guardian about your plans for the coming day, such as your plans about what will happen at school (or school-at-home) or what you are going to do?
parent_monitor_q5_y_cv	About your life over the past week:How many times do you and your parents/guardians eat dinner together?
past_week_cope_cv___1	And finally, in the past week, to cope, have you done any of the following? : 1, Took breaks from watching, reading, or listening to news stories, including social media
past_week_cope_cv___2	And finally, in the past week, to cope, have you done any of the following? : 2, Participated in a neighborhood social distance activity (such decorated windows or driveway, singing from balcony or porch)
past_week_cope_cv___3	And finally, in the past week, to cope, have you done any of the following? : 3, Took care of your body, such as taking deep breaths, stretching, or meditating
past_week_cope_cv___4	And finally, in the past week, to cope, have you done any of the following? : 4, Exercised (such as walking, running, or an online exercise class)
past_week_cope_cv___5	And finally, in the past week, to cope, have you done any of the following? : 5, Spent more time on hobbies, or started a new one

past_week_cope_cv___6	And finally, in the past week, to cope, have you done any of the following? : 6, Engaged in healthy behaviors, like trying to eat healthy, getting plenty of sleep
past_week_cope_cv___7	And finally, in the past week, to cope, have you done any of the following? : 7, Made time to relax
past_week_cope_cv___8	And finally, in the past week, to cope, have you done any of the following? : 8, Connected with others online or by phone
past_week_cope_cv___9	And finally, in the past week, to cope, have you done any of the following? : 9, None of the above
pet_identify_cv___1	Please select all the pets that you currently have: 1, Dog
pet_identify_cv___2	Please select all the pets that you currently have: 2, Cat
pet_identify_cv___3	Please select all the pets that you currently have: 3, Horse
pet_identify_cv___4	Please select all the pets that you currently have: 4, Fish
pet_identify_cv___5	Please select all the pets that you currently have: 5, Small animal (e.g., rabbit, hamster, bird)
pet_identify_cv___6	Please select all the pets that you currently have: 6, Other
pets_cv	Do you currently have any pets?
physical_activities_hr_cv	During the¬†past week, on how many days did you do¬†moderate¬†or¬†vigorous¬†physical activities like heavy lifting, running, aerobics, or bicycling? (Moderate¬†or¬†vigorous¬†physical activities refer to activities that take moderate¬†to hard physical effort and make you breathe harder than normal)
ple_close_fam_cv	Are you separated from a close family member (like can't be together with a parent, or can't visit a close family member)?
ple_close_fam_fu_y_cv	Separated from close family member: Was this a mostly good or bad experience?
ple_close_fam_fu2_cv	Separated from close family member: How much has this affected you?
ple_close_fam_fu3_y_cv	Separated from close family member: Is this due to the coronavirus situation?
pro_po_2_cv	Since April 2020, did you scroll, write, or post to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations (public marches, rallies) for: Support for police (pro-police)
pro_po_3_cv	Since April 2020, do you know people who attended a public demonstration (public marches, rallies) without you for: Support for police (pro-police)
pro_po_4_cv	Since April 2020, how many demonstrations (public marches, rallies) have you attended in-person for: Support for police (pro-police)

pro_po_cv	Since April 2020, did you watch TV stories, look on the internet, or listen to news on the radio about public demonstrations (public marches, rallies) on: Support for police (pro-police)
pro_po_demo_help_cv	When you attended the in-person demonstrations for support for police (pro-police), did you see. . . Demonstrator helping or protecting a demonstrator
pro_po_force_cv	When you attended the in-person demonstrations for support for police (pro-police), did you see. . . Force by police (pushing, shoving or use of tear gas)
pro_po_friends_cv	Who attended a public demonstration without you for support for police (pro-police)? Friends:
pro_po_help_cv	When you attended the in-person demonstrations for support for police (pro-police), did you see. . . Police helping or protecting a demonstrator
pro_po_neigh_cv	Who attended a public demonstration without you for support for police (pro-police)? Neighbors:
pro_po_parents_cv	Who attended a public demonstration without you for support for police (pro-police)? Parents:
pro_po_sib_cv	Who attended a public demonstration without you for support for police (pro-police)?Siblings:
pro_po_social_media_cv	Since April 2020, how often did you scroll, write, or post to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for support for police (pro-police)?
pro_po_time_cv	Since April 2020, how much time did you spend, on average, watching TV stories, looking on the internet, or listening to news on the radio about demonstrations related to support for police (pro-police)?
pro_po_violence_cv	When you attended the in-person demonstrations for support for police (pro-police), did you see. . . Violence by demonstrators (throwing rocks, bottles at police, destroying property)
pstr_confidence_p_cv	In the last month, how often have you felt confident about your ability to handle your personal problems?
pstr_overcome_p_cv	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
pstr_unable_control_cv	In the last month, how often have you felt that you were unable to control the important things in your life?
pstr_way_p_cv	In the last month, how often have you felt that things were going your way?
questionnaire_privacy_cv	How much privacy did you have while you were completing this questionnaire today?
reg_meals_cv	Over the past week:I had regular meals...
relationships_w_family_cv	In the last week, the relationships between members of your family are:
relationships_w_friends_cv	In the last week, your friendships are:

reopen_bus_2_cv	Since April 2020, did you scroll, write, or post to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations (public marches, rallies) for: Reopening businesses
reopen_bus_3_cv	Since April 2020, do you know people who attended a public demonstration (public marches, rallies) without you for: Reopening businesses
reopen_bus_4_cv	Since April 2020, how many demonstrations (public marches, rallies) have you attended in-person for: Reopening businesses
reopen_bus_cv	Since April 2020, did you watch TV stories, look on the internet, or listen to news on the radio about public demonstrations (public marches, rallies) onReopening businesses
reopen_bus_demo_help_cv	When you attended the in-person demonstrations for reopening of businesses, did you see...Demonstrator helping or protecting a demonstrator
reopen_bus_friends_cv	Who attended a public demonstration without you for reopening businesses?Friends:
reopen_bus_neigh_cv	Who attended a public demonstration without you for reopening businesses?Neighbors:
reopen_bus_parents_cv	Who attended a public demonstration without you for reopening businesses?Parents:
reopen_bus_po_force_cv	When you attended the in-person demonstrations for reopening of businesses, did you see...Force by police (pushing, shoving or use of tear gas)
reopen_bus_po_help_cv	When you attended the in-person demonstrations for reopening of businesses, did you see...Police helping or protecting a demonstrator
reopen_bus_sib_cv	Who attended a public demonstration without you for reopening businesses?Siblings:
reopen_bus_social_media_cv	Since April 2020, how often did you scroll, write, or post to social media (e.g., Facebook, Instagram, Twitter, Snapchat, TikTok) about the demonstrations for reopening businesses?
reopen_bus_time_cv	Since April 2020, how much time did you spend, on average, watching TV stories, looking on the internet, or listening to news on the radio about demonstrations related to reopening businesses?
reopen_bus_violence_cv	When you attended the in-person demonstrations for reopening of businesses, did you see...Violence by demonstrators (throwing rocks, bottles at police, destroying property)
routine_cv	Over the past week: I kept a morning routine (that is, I usually did the same thing each morning)...
scared_easily_cv	In the past week...I got scared really easily
school_cv	In the past week, is your schooling like it was in January 2020?
school_like_activities_cv	Of this time, how many hours per day did you spend in on-line classes, or other school-related on-line gatherings with other students or teachers?
schoollikeactivitiesreduced cv	How many hours per day did you spend in on-line classes, or other school-related on-line gatherings with other students or teachers?

school_work_cv	Did you find that your school work was:
schooling_cv	In the past week, was your schooling taking place:
screentime_10_wknd_hr_cv	Play multiplayer video games on a computer, console, phone, or other device (Xbox, PlayStation, iPad, AppleTV) where you can interact with others in the game?
screentime_11_wknd_hr_cv	Text on a cell phone, tablet, computer, iPod, or other electronic device (e.g., GChat, Whatsapp, Kik etc.)?
screentime_12_wknd_hr_cv	Visit social media apps (e.g., Snapchat, Facebook, Twitter, Instagram, TikTok, etc.? (Do not include time spent editing photos or videos to post on social media.)
screentime_14_wknd_hr_cv	Video chat (Skype, FaceTime, VRchat, etc.) that is NOT for school
screentime_15_wknd_hr_cv	Searching or browsing the internet (e.g., using Google) that is NOT for school
screentime_7_wknd_hr_cv	Watch "or stream" movies, videos or TV shows? (such as Hulu, Netflix, Amazon, YouTube, Twitch)
screentime_9_wknd_hr_cv	Play single-player video games on a computer, console, phone or other device (Xbox, PlayStation, iPad, AppleTV)?
screentime_cv	On a typical day in the past week, how much TIME per day did you spend playing an instrument or singing?
screentime_music_cv	On a typical day in the past week, how much TIME per day did you spend listening to music/watching music videos?
screentime_wknd_hr_cv	On a typical day, how much TIME per day do you spend in TOTAL on a computer, phone, tablet, iPod, or other device or video game? (Do NOT include time spent on school work)
screentime_wknd_typical_hr_cv	On a typical day, how much TIME per day do you spend in TOTAL connecting with friends digitally (all forms listed above included)?
sitting_weekday_hour_2_cv	During the past week, how much time did you usually spend sitting on a day? (This may include time spent sitting at a desk, reading, or sitting or lying down to watch television or play video-games) (round1 and 2)
sitting_weekday_hour_cv	During the past week, how much time did you usually spend sitting on a day? (This may include time spent sitting at a desk, reading, or sitting or lying down to watch television or play video-games)
social_media_cv	The following questions ask about your use of different forms of media (television, social media, and other internet sources) to check for news related to the coronavirus pandemic in the past week.How

	often did you look at coronavirus-related social media activity (e.g. Facebook, Twitter, Instagram, TikTok, SnapChat)?
social_media_platform_cv	The following questions ask about your use of different forms of media (television, social media, and other internet sources) to check for news related to the coronavirus pandemic in the past week.Which platform did you use the most when checking for news related to coronavirus?
something_awful_cv	In the past week...I felt like something awful might happen
stressful_y_cv	COVID-19 presents a lot of uncertainty about the future. In the past 7 days, including today, how stressful have you found this uncertainty to be?
strle_angry_cv	Below is a list of comments made by people after a stressful life event. Thinking about the coronavirus situation, please check each item showing how often these comments were true for you in the past week. If they did not occur this week, check "not at all".I felt angry or frustrated
strle_not_talk_about_cv	Below is a list of comments made by people after a stressful life event. Thinking about the coronavirus situation, please check each item showing how often these comments were true for you in the past week. If they did not occur this week, check "not at all".Do you try not to talk about it?
strle_pictures_cv	Below is a list of comments made by people after a stressful life event. Thinking about the coronavirus situation, please check each item showing how often these comments were true for you in the past week. If they did not occur this week, check "not at all".Do pictures about it pop into your mind?
strle_reminder_pl_cv	Below is a list of comments made by people after a stressful life event. Thinking about the coronavirus situation, please check each item showing how often these comments were true for you in the past week. If they did not occur this week, check "not at all".Do you stay away from reminders of it (e.g. places or situations?)
strle_rv_fr_mem_cv	Below is a list of comments made by people after a stressful life event. Thinking about the coronavirus situation, please check each item showing how often these comments were true for you in the past week. If they did not occur this week, check "not at all".Do you try to remove it from your memory?
strle_strong_feelings_cv	Below is a list of comments made by people after a stressful life event. Thinking about the coronavirus situation, please check each item showing how often these comments were true for you in the past week. If they did not occur this week, check "not at all".Do you have waves of strong feelings about it?

strle_think_about_cv	Below is a list of comments made by people after a stressful life event. Thinking about the coronavirus situation, please check each item showing how often these comments were true for you in the past week. If they did not occur this week, check "not at all".Do other things keep making you think about it?
strle_think_of_cv	Below is a list of comments made by people after a stressful life event. Thinking about the coronavirus situation, please check each item showing how often these comments were true for you in the past week. If they did not occur this week, check "not at all".Do you think about it even when you don't mean to?
strle_try_not_to_think_cv	Below is a list of comments made by people after a stressful life event. Thinking about the coronavirus situation, please check each item showing how often these comments were true for you in the past week. If they did not occur this week, check "not at all".Do you try not to think about it?
su_alcohol_cv	On how many DAYS (if any) during the LAST 30 DAYS have you...Had a drink containing alcohol?
su_liquids_cv	On how many DAYS (if any) during the LAST 30 DAYS have you...Sniffed liquids, sprays or gases to get high?
su_medication_cv	On how many DAYS (if any) during the LAST 30 DAYS have you...Used any prescription medications in a way your doctor did not direct you to use them?
su_meth_cv	On how many DAYS (if any) during the LAST 30 DAYS have you...Used any other drugs such as cocaine, methamphetamine, heroin, or hallucinogens?
su_mj_edible_cv	On how many DAYS (if any) during the LAST 30 DAYS have you...Had marijuana that you eat, such as pot cookies, gummy bears or brownies that contain marijuana?
su_mj_oils_cv	On how many DAYS (if any) during the LAST 30 DAYS have you. . . Smoked marijuana oils or concentrates, such as THC oil, hash oil or dabs" in a pipe or dab rig?"
su_mj_use_past_month_cv	Have you used marijuana in the past month?
su_smoked_mj_fl_cv	On how many DAYS (if any) during the LAST 30 DAYS have you...Smoked marijuana flower or bud in a pipe, joint or hookah or bong?
su_smoked_tob_cig_cv	On how many DAYS (if any) during the LAST 30 DAYS have you...Smoked a tobacco cigar, hookah or pipe?
su_tobacco_chew_cv	On how many DAYS (if any) during the LAST 30 DAYS have you...Used smokeless tobacco, chew, or snus?
su_tobacco_cig_cv	On how many DAYS (if any) during the LAST 30 DAYS have you...Smoked a tobacco cigarette?

su_vape_nic_cv	On how many DAYS (if any) during the LAST 30 DAYS have you...Vaped using an electronic nicotine or vaping product, such as e-cigarettes, vape pen, or JUUL?
su_vaped_mj_fl_cv	On how many DAYS (if any) during the LAST 30 DAYS have you...Vaped marijuana flower or bud in a vape pen, vaporizer, or e-vaporizer?
su_vaped_mj_oils_cv	On how many DAYS (if any) during the LAST 30 DAYS have you...Vaped marijuana oils or concentrates such as THC, hash or BHO oil, in a vape pen or vaporizer?
teach_concept_cv	How many days (0 to 7) did your parents:Directly teach you concepts
tv_view_cv	How many days (0 to 7) did your parents:Which television channel did you watch most when viewing news related to coronavirus? (include both watching on a TV and streaming online)
walk_10_min_per_day_cv	During the past week, on how many days did you walk for at least 10 minutes at a time?
walking_hour_per_day_2_cv	How much time did you usually spend on one of those days walking for at least 10 minutes at a time? hours
walking_hour_per_day_cv	How much time did you usually spend on one of those days walking for at least 10 minutes at a time? hours (round1 and 2)
walking_min_per_day_cv	How much time did you usually spend on one of those days walking for at least 10 minutes at a time? Minutes
witness_rac_disc_cv	Over the past week: I witnessed racism or discrimination in relation to coronavirus . . .
worried_about_me_cv	In the past week...I worried about what could happen to me
worried_at_home_cv	In the past week...I worried when I was at home
worried_at_night_cv	In the past week...I worried when I went to bed at night
worried_cv	In the past week...I felt worried
worry_y_cv	In the past week...How worried have you been about coronavirus (COVID-19)?
collection_title	collection_title
study_cohort_name	study_cohort_name

eTable 3 – ABCD Parent COVID-19 Assessments

subjectkey	The NDAR Global Unique Identifier (GUID) for research subject
src_subject_id	Subject ID how it's defined in lab/project
interview_date	Date on which the interview/genetic test/sampling/imaging/biospecimen was completed. MM/DD/YYYY
interview_age	Age in months at the time of the interview/test/sampling/imaging.
sex	Sex of the subject
eventname	The event name for which the data was collected
cv_p_select_language___1	Espanol? (asking if the assessment should be given in Spanish)
ext_fam_diag_cv	Number of extended family member(s) and/or close friends diagnosed with coronavirus:
ext_fam_severity_cv	Rate the symptoms of the person who was most sick:
fam_actions_cv___1	In the past week our family has (check all that apply; by your choice rather than because it's closed): 1 Engaged in social distancing
fam_actions_cv___2	In the past week our family has (check all that apply; by your choice rather than because it's closed): 2 Avoided gatherings of 250 people or more
fam_actions_cv___3	In the past week our family has (check all that apply; by your choice rather than because it's closed): 3 Avoided gatherings of 10 people or more
fam_actions_cv___4	In the past week our family has (check all that apply; by your choice rather than because it's closed): 4 Avoided visiting family and friends outside our own immediate family
fam_actions_cv___5	In the past week our family has (check all that apply; by your choice rather than because it's closed): 5 Avoided having people in our home except for a immediate family
fam_actions_cv___6	In the past week our family has (check all that apply; by your choice rather than because it's closed): 6 Avoided restaurant dining
fam_actions_cv___7	In the past week our family has (check all that apply; by your choice rather than because it's closed): 7 Avoided restaurant take-out
fam_actions_cv___8	In the past week our family has (check all that apply; by your choice rather than because it's closed): 8 Avoided grocery store or pharmacies
fam_actions_cv___9	In the past week our family has (check all that apply; by your choice rather than because it's closed): 9 Avoided stores (not including grocery stores or a pharmacies

fam_actions_cv___10	In the past week our family has (check all that apply; by your choice rather than because it's closed): 10 Avoided routine doctor visits
fam_actions_cv___11	In the past week our family has (check all that apply; by your choice rather than because it's closed): 11 Avoided places like gyms malls movie theatres
fam_actions_cv___12	In the past week our family has (check all that apply; by your choice rather than because it's closed): 12 Avoided taking public transportation
fam_actions_cv___13	In the past week our family has (check all that apply; by your choice rather than because it's closed): 13 Avoided parks or playgrounds
fam_actions_cv___14	In the past week our family has (check all that apply; by your choice rather than because it's closed): 15 Wore a mask
fam_actions_cv___15	In the past week our family has (check all that apply; by your choice rather than because it's closed): 4 None of the above
fam_discord_cv	Please rate how much the coronavirus pandemic has changed your family's life in each of the following ways. Stress and discord in the family:
fam_exp_racism_cv	I am worried that our family will experience racism or discrimination in relation to coronavirus
fam_exp1_cv	Were you ever worried about whether your food would run out before you could get more?
fam_exp2_cv	Needed food but couldn't afford to buy it or couldn't afford to get out to get it?
fam_exp3_cv	Were without telephone service because you could not afford it?
fam_exp4_cv	Didn't pay the full amount of the rent or mortgage because you could not afford it?
fam_exp5_cv	Were evicted from your home for not paying the rent or mortgage?
fam_exp6_cv	Had services turned off by the gas or electric company or the oil company wouldn't deliver oil because payments were not made?
fam_exp7_v2_cv	If you lost all your current source(s) of household income (your paycheck public assistance or other forms of income) how long could you continue to live at your current address and standard of living?
fam_expose_cv	Was anyone in your household at increased risk for COVID-19 due to work in healthcare or other essential jobs (such as grocery store factory gig economy) or use of public transit?
fam_hc_acc_cv	Please rate how much the coronavirus pandemic has changed your family's life in each of the following ways.Medical health care access:
fam_ht_acc_cv	Please rate how much the coronavirus pandemic has changed your family's life in each of the following ways.Mental health treatment access:

fam_rout_cv	Please rate how much the coronavirus pandemic has changed your family's life in each of the following ways.Routines Rutinas:
fam_self_quarantine_cv	Did this person need to self-quarantine in a separatesection of the household?
fam_size_cv	How many people are living at your address? INCLUDE yourself and everyone who is living or staying at your place this week.
fam_stress_cv	Please rate how much the coronavirus pandemic has changed your family's life in each of the following ways.Experience of stress related to coronavirus pandemic
fam_supp_acc_cv	Please rate how much the coronavirus pandemic has changed your family's life in each of the following ways.Access to family and close non-family social contacts (such as friends neighbors members of a social or religious group you belong to)
fam_wage_loss_cv	Since January 2020 has anyone in your household lost wages sales or work due to the impact of coronavirus on employment business or the economy?
future_scan_1_cv	Once local restrictions are lifted how likely are you to return to your ABCD on-site location with your child(ren) for collection of height and weight measurement blood pressure and biosamples like saliva and blood given that the necessary precautions outlined by the CDC are in place (personal protective equipment; social distancing guidelines)?
future_scan_cv	Once local restrictions are lifted how likely are you to return to your ABCD on-site location with your child(ren) for an MRI scan given that necessary precautions outlined by the CDC are in place (personal protective equipment; social distancing guidelines)?
get_coronavirus_cv	I think it is likely that I will get coronavirus
increased_conflict_cv	I have noticed increased conflict in our family since our area started worrying about coronavirus
p_cope_cv___1	In the past week to cope have you done any of the following? (check all that apply) : 1 Took breaks from watching reading or listening to news stories including social media
p_cope_cv___2	In the past week to cope have you done any of the following? (check all that apply) : 2 Participated in a neighborhood social distance activity (such as decorated windows or driveway singing from balcony or porch)
p_cope_cv___3	In the past week to cope have you done any of the following? (check all that apply) : 3 Took care of my body such as taking deep breaths stretching or meditating
p_cope_cv___4	In the past week to cope have you done any of the following? (check all that apply) : 4 Exercised (such as walking running or an online exercise class)

p_cope_cv___5	In the past week to cope have you done any of the following? (check all that apply) : 5 Spent more time on hobbies or started a new one
p_cope_cv___6	In the past week to cope have you done any of the following? (check all that apply) : 6 Engaged in healthy behaviors like trying to eat healthy getting plenty of sleep
p_cope_cv___7	In the past week to cope have you done any of the following? (check all that apply) : 7 Made time to relax
p_cope_cv___8	In the past week to cope have you done any of the following? (check all that apply) : 8 Connected with others online or by phone
p_cope_cv___9	In the past week to cope have you done any of the following? (check all that apply) : 9 None of the above
p_enjoy_cv	Are you able to enjoy things?
p_life_changed_cv	How much do you think your life has changed due to the coronavirus (COVID-19)
p_worry_cv	How worried have you been about coronavirus (COVID-19)?
su_p_alc_drinks_used_cv	How many alcoholic drinks did you have on a typical day when you drank alcohol?
su_p_alc_use_cv	On how many days did you use alcohol?
su_p_cig_loc_cv___1	Where did you use cigarettes? (check all that apply) : 1 In the house
su_p_cig_loc_cv___2	Where did you use cigarettes? (check all that apply) : 2 Balcony / deck
su_p_cig_loc_cv___3	Where did you use cigarettes? (check all that apply) : 3 In the car
su_p_cig_loc_cv___4	Where did you use cigarettes? (check all that apply) : 4 Outside
su_p_cig_loc_cv___5	Where did you use cigarettes? (check all that apply) : 5 Other
su_p_cig_use_cv	About how many times per day did you use cigarettes?
su_p_days_drunk_cv	On how many days were you drunk?
su_p_mj_smoke_cv	About how many times per day did you smoke a marijuana or cannabis product?
su_p_mj_smoke_loc_cv___1	Where did you smoke a marijuana or cannabis product? (check all that apply) : 1 In the house
su_p_mj_smoke_loc_cv___2	Where did you smoke a marijuana or cannabis product? (check all that apply) : 2 balcony / deck
su_p_mj_smoke_loc_cv___3	Where did you smoke a marijuana or cannabis product? (check all that apply) : 3 In the car

su_p_mj_smoke_loc_cv___4	Where did you smoke a marijuana or cannabis product? (check all that apply) : 4 Outside
su_p_mj_smoke_loc_cv___5	Where did you smoke a marijuana or cannabis product? (check all that apply) : 5 Other
su_p_mj_use_cv	About how many times per day did you use a marijuana or cannabis product?
su_p_mj_vape_loc_cv___1	Where did you vape a marijuana or cannabis product? (check all that apply) : 1 In the house
su_p_mj_vape_loc_cv___2	Where did you vape a marijuana or cannabis product? (check all that apply) : 2 balcony / deck
su_p_mj_vape_loc_cv___3	Where did you vape a marijuana or cannabis product? (check all that apply) : 3 In the car
su_p_mj_vape_loc_cv___4	Where did you vape a marijuana or cannabis product? (check all that apply) : 4 Outside
su_p_mj_vape_loc_cv___5	Where did you vape a marijuana or cannabis product? (check all that apply) : 5 Other
su_p_mj_vape_use_cv	How many times per day did you vape a marijuana or cannabis product?
su_p_other_drugs_cv	On how many days did you use other drugs for nonmedical purposes (such as cocaine methamphetamine and other drugs not counting alcohol nicotine or marijuana)?
su_p_rx_od_cv	About how many times per day did you take a prescription pill above the recommended dose or that was not prescribed to you?
su_p_vape_loc_cv___1	Where did you use vapes? (check all that apply) : 1 In the house
su_p_vape_loc_cv___2	Where did you use vapes? (check all that apply) : 2 Balcony / deck
su_p_vape_loc_cv___3	Where did you use vapes? (check all that apply) : 3 In the car
su_p_vape_loc_cv___4	Where did you use vapes? (check all that apply) : 4 Outside
su_p_vape_loc_cv___5	Where did you use vapes? (check all that apply) : 5 Other
su_p_vape_use_cv	About how many times per day did you vape using an electronic nicotine or vaping product such as e-cigarettes vape pen or JUUL ?
think_someone_close_get_cv	I think it is likely that someone very close to me will be hospitalized or die from the coronavirus
think_will_get_cv	I think it is likely that someone very close to me will get coronavirus
think_will_hospitalized_cv	I think it is likely I will be hospitalized or die from the coronavirus
worry_about_cv	I think all of this worry about coronavirus is blown out of proportion
absent_reason_cv___1	Please check all reasons your child did not do school this week: 1 My child was too sick to go to school

absent_reason_cv___2	Please check all reasons your child did not do school this week: 2 I do not feel safe sending him/her to school right now because of coronavirus
absent_reason_cv___3	Please check all reasons your child did not do school this week: 3 My child is too worried to go to school because of coronavirus
absent_reason_cv___4	Please check all reasons your child did not do school this week: 4 Other
assure_child_cv	I have told my child that everything will be okay
asthma_medi_corti_cv	Inhaled corticosteroids (like Qvar Pulmicort or Flovent)
asthma_medi_inhaler_cv	Asthma inhalers (like Albuterol or Advair)
asthma_medi_injection_cv	Medications by injection (Xolair Nucala Fasenra Cinquil and Duplxent)
asthma_medi_steriods_cv	Steroids you take by mouth to maintain your asthma
asthma_medi_zpak_cv	Azithromycin (Zpak) and clarithromycin (Blaxin)
avoid_discussing_cv	I have asked others to avoid discussing coronavirus and its potential impacts in front of my child
avoid_talking_about_cv	I have avoided talking to my child about coronavirus
bio_dad_hos_cv	Did the biological father require hospitalization?
bio_mom_hos_cv	Did the biological mother require hospitalization?
caregiver_cv	Is there another adult who usually helps with caregiving responsibilities?
caregiver_help_cv	Has the coronavirus situation interfered with theextent to which this person is helping?
child_asthma_medi_cv	Since March has your child's asthma medications changed or has she/he stopped taking some asthma medications?
child_asthma_symptoms_cv	Since March has your child's asthma symptoms (e.g. wheezing coughing shortness of breath chest tightness or pain):
child_avg_elec_min_cv	On an average day this week how much Minutes per day does your child spend in TOTAL on a computer cell phone tablet iPod or other electronic device? Do NOT include time spent on school related work but do include watching TV shows or videos texting or chatting playing games or visiting social networking sites? (Facebook Twitter Instagram).
child_avg_elec_time_2_cv	On an average day this week how much Hours per day does your child spend in TOTAL on a computer cell phone tablet iPod or other electronic device? Do NOT include time spent on school related work but do include watching TV shows or videos texting or chatting playing games or visiting social networking sites? (Facebook Twitter Instagram).

child_avg_elec_time_cv	On an average day this week how much Hours per day does your child spend in TOTAL on a computer cell phone tablet iPod or other electronic device? Do NOT include time spent on school related work but do include watching TV shows or videos texting or chatting playing games or visiting social networking sites? (Facebook Twitter Instagram).
child_breaking_rules_cv	My child is breaking rules we have made in relation to coronavirus
child_care_cv	During this period of school closure are you the primary (or co-primary) person responsible for your child's care during the day?
child_care_impact_cv___1	In what ways has the COVID-19 outbreak impacted your child's overall healthcare? (check all that apply) : 1 My child did not go to healthcare appointments because I was concerned about him/her entering the healthcare provider's office
child_care_impact_cv___2	In what ways has the COVID-19 outbreak impacted your child's overall healthcare? (check all that apply) : 2 My child's healthcare provider cancelled appointments
child_care_impact_cv___3	In what ways has the COVID-19 outbreak impacted your child's overall healthcare? (check all that apply) : 3 My child's healthcare provider changed to phone or online visits
child_care_impact_cv___4	In what ways has the COVID-19 outbreak impacted your child's overall healthcare? (check all that apply) : 4 My child's healthcare provider told him/her to a self-isolate or quarantine
child_care_impact_cv___5	In what ways has the COVID-19 outbreak impacted your child's overall healthcare? (check all that apply) : 5 None of these apply
child_cosymptoms_cv___1	During that time which of the following symptoms did your child also have? (check all that apply) : 1 Sore throat
child_cosymptoms_cv___2	During that time which of the following symptoms did your child also have? (check all that apply) : 2 Headache
child_cosymptoms_cv___3	During that time which of the following symptoms did your child also have? (check all that apply) : 3 Muscle or body aches
child_cosymptoms_cv___4	During that time which of the following symptoms did your child also have? (check all that apply) : 4 Runny nose
child_cosymptoms_cv___5	During that time which of the following symptoms did your child also have? (check all that apply) : 5 Fatigue and excessive sleepiness
child_cosymptoms_cv___6	During that time which of the following symptoms did your child also have? (check all that apply) : 6 Diarrhea nausea or vomiting

child_cosymptoms_cv___7	During that time which of the following symptoms did your child also have? (check all that apply) : 7 Loss of sense of smell or taste
child_cosymptoms_cv___8	During that time which of the following symptoms did your child also have? (check all that apply) : 8 Itchy/red eyes
child_cosymptoms_cv___9	During that time which of the following symptoms did your child also have? (check all that apply) : 9 None of the above
child_covid_cv	Has your healthcare provider ever told you that your child has or might have COVID-19 (coronavirus)?
child_diag_asthma_cv	Has your child ever been diagnosed with asthma?
child_diagnosis_cv	How was s/he (your child) diagnosed with asthma?
child_enjoy_cv	Being afraid of an illness or virus has gotten in the way of my child enjoying their life (e.g. caused fights in the house kept them from connecting with others made them feel isolated or hopeless about the future etc.).
child_fall_asleep_time_cv	How long after going to bed does your child usually fall asleep?
child_fear_cv	Being afraid of an illness or virus has caused my child to experience very strong emotions (e.g. anger anxiety sadness irritable feelings etc.).
child_frustrated_cv	My child is frustrated with changes or rules we have made in relation to coronavirus
child_gaming_min_cv	through multiple-player video games : minutes
child_gaming_time_2_cv	through multiple-player video games : hours (Question round 3 and 4)
child_gaming_time_cv	through multiple-player video games : hours (Question for round 1 and 2)
child_news_source_cv	What is the most likely news network for this information in your home? (include both watching on a television set or streaming online)
child_news_time_cv	Over the past week about how much time per day do you think your child has been getting news from television news sources about the coronavirus and its impact? (hours)
child_past_risk_cv___1	In the two weeks before your child had symptoms did he/she: (check all that apply) : 1 Have contact with someone who tested positive for COVID-19
child_past_risk_cv___2	In the two weeks before your child had symptoms did he/she: (check all that apply) : 2 Have contact with someone who likely had COVID-19 (that is they were not tested but had symptoms or was told by a healthcare provider they likely had it)
child_past_risk_cv___3	:In the two weeks before your child had symptoms did he/she: (check all that apply) : 3 Travel to a different state or country

child_past_risk_cv___4	:In the two weeks before your child had symptoms did he/she: (check all that apply) : 4 None of the above
child_phys_activity_days_cv	On how many days per week did your child do moderate or vigorous physical activities like heavy lifting running aerobics or bicycling?
child_phys_activity_min_cv	How much time did your child usually spend doing moderate or vigorous physical activities on one of those days? (minutes)
child_phys_activity_time_2 _cv	How much time did your child usually spend doing moderate or vigorous physical activities on one of those days? (Hours)
child_phys_activity_time_cv	How much time did your child usually spend doing moderate or vigorous physical activities on one of those days? (Hours) (round 1 and 2)
child_reluc_cv	My child goes to bed reluctantly
child_sched_cv	I have designed a daily schedule for my child while school is out
child_separate_cv	Is your child having a hard time being separated from anyone close due to the impact of coronavirus? Le cuesta a su hijo/a estar separado/separada de alguien cercano debido al impacto del coronavirus
child_serious_cv	My child seems to be taking coronavirus and social distancing" seriously
child_sleep_again	After waking up in the night my child has difficulty to fall asleep again
child_sleep_amount_cv	How many hours of sleep does your child get on most nights?
child_sleep_anxiety_cv	My child feels anxious or afraid when falling asleep
child_sleep_difficult_cv	My child has difficulty getting to sleep at night
child_social_media_min_cv	social media (including Facebook Youtube TikTok Snapchat etc) :Minutes
child_social_media_time_2 _cv	social media (including Facebook Youtube TikTok Snapchat etc) :Hours
child_social_media_time_cv	social media (including Facebook Youtube TikTok Snapchat etc) :Hours (round 1 and 2)
child_symptom_actions_cv___1	Which of the following ever occurred as a result of your child's symptoms? (check all that apply) : 1 My child was kept overnight in a hospital because a healthcare provider thought the child had COVID-19
child_symptom_actions_cv___2	Which of the following ever occurred as a result of your child's symptoms? (check all that apply) : 2 My child saw a healthcare provider in person such as in a clinic doctor's office urgent care ER
child_symptom_actions_cv___3	Which of the following ever occurred as a result of your child's symptoms? (check all that apply) : 3 My child or I spoke to a healthcare provider over the phone email or online

child_symptom_actions_cv___4	Which of the following ever occurred as a result of your child's symptoms? (check all that apply) : 4 My child or I self-isolated or quarantined at home
child_symptom_actions_cv___5	Which of the following ever occurred as a result of your child's symptoms? (check all that apply) : 5 None of the above
child_symptoms_cv___1	Which of the following symptoms has your child had at any point in time since March 2020? (check all that apply) : 1 Fever or chills
child_symptoms_cv___2	Which of the following symptoms has your child had at any point in time since March 2020? (check all that apply) : 2 Cough
child_symptoms_cv___3	Which of the following symptoms has your child had at any point in time since March 2020? (check all that apply) : 3 Shortness of breathDificult
child_symptoms_cv___4	Which of the following symptoms has your child had at any point in time since March 2020? (check all that apply) : 4 None of the above
child_test_1_cv	Results of child's COVID-19 Test 1
child_test_2_cv	Results of child's COVID-19 Test 2
child_test_3_cv	Results of child's COVID-19 Test 3
child_tested_cv	Has your child been tested for COVID-19 (for the active virus)?
child_texting_min_cv	through texting : Minutes
child_texting_time_2_cv	through texting :Hours (Question round 3 and 4)
child_texting_time_cv	through texting :Hours (Question for round 1 and 2)
child_video_chat_min_cv	through video chatting (Facetime Skype Zoom Hangouts etc) : Minutes
child_video_chat_time_2_cv	through video chatting (Facetime Skype Zoom Hangouts etc) : hours
child_video_chat_time_cv	through video chatting (Facetime Skype Zoom Hangouts etc) : hours (round 1 and 2)
child_wake_up	My child wakes up more than twice per night
child_worried_about_cv	My child seems worried about non-health related consequences of coronavirus (e.g. financial)
child_worry_cv	My child seems worried about becoming ill or that others they know will become ill with coronavirus
custody_cv	Has your custody situation changed since the coronavirus/COVID-19 crisis?
diag_confidence_cv	How confident are you in this coronavirus diagnosis?
encouraged_cv	I have encouraged my child not to focus on coronavirus or its impacts on people and the world

extra_material_cv	Did you or your child supplement the educational materials provided by the school with other sources (e.g. Khan Academy)?
fam_covid_yn_cv	Did this family member test positive for coronavirus (COVID-19)?
fam_diag_cv	Number of immediate family members (same household) diagnosed with coronavirus
fam_member_relation_p_cv___1	Who was this family member in relation to your child? : 1 Child's Biological Mother
fam_member_relation_p_cv___2	Who was this family member in relation to your child? : 2 Child's Biological Father
fam_member_relation_p_cv___3	Who was this family member in relation to your child? : 3 Adoptive Parent
fam_member_relation_p_cv___4	Who was this family member in relation to your child? : 4 Child's Custodial Parent
fam_member_relation_p_cv___5	Who was this family member in relation to your child? : 5 Child's Biological Sibling
fam_member_relation_p_cv___6	Who was this family member in relation to your child? : 6 Other
fam_sick_severity_cv	Rate the symptoms of the person in your family who was most sick:
graded_cv	Is your child being graded for their schoolwork?
homework_help_time_cv	How many hours per day did you spend helping your child access or complete their schoolwork?
homework_time_cv	On an average weekday how many hours per day did your child spend doing schoolwork?
hours_homework_time_cv	In the past week how many hours per day did your child spend doing school or schoolwork?
hours_online_self_cv	In the past week how many hours per day did your child: Self-study with online material
hours_teaching_cv	In the past week how many hours per day did your child: Guided screen-sharing instruction by teachers
hours_textbook_self_cv	In the past week how many hours per day did your child: Self-study with paper school packet and textbooks
hours_video_cv	In the past week how many hours per day did your child: Video-instruction by teachers
household_ability_cv	Is your role caring for your child conflicting with your household responsibilities?
iep_cv	Does your child have an IEP or 504 plan?
iep_provide_cv	Did the school continue to provide services?

internet_access_cv	Do you have internet access at home?
material_access_cv	Were you or your child able to access school provided materials (e.g. online through pick up some other way)
p_feeling_cv	I discussed with my child my own feelings about coronavirus and its impact on people and the world
p_safety_cv	I have expressed concern to my child that they might not be fully safe from coronavirus
percent_live_cv	What percent of the time did your child live with you?
prepared_child_cv	I have prepared my child for our lives to change significantly
prim_cv	You are the: Usted es:
school_at_home_cv	Is your child currently doing some or all of their school-at-home?
school_close_cv	Has your child's school been closed physically due to coronavirus?
school_close_date_cv	Last date of in-person class
school_close_date_dk_cv	Last date of in-person class: Other Reasons
school_difficulty	How easy or difficult was it for your child to complete school work remotely? Que tan facil o dificil fue para su hijo/a completar su trabajo escolar desde casa
school_engage_cv___1	How is your child engaging in their school's curriculum (check all that apply) : 1 Self-study with online material
school_engage_cv___2	How is your child engaging in their school's curriculum (check all that apply) : 2 Self-study with paper school packet and textbooks
school_engage_cv___3	How is your child engaging in their school's curriculum (check all that apply) : 3 Guided screen-sharing instruction by teachers
school_engage_cv___4	How is your child engaging in their school's curriculum (check all that apply) : 4 Video-instruction by teachers
school_engage_cv___5	How is your child engaging in their school's curriculum (check all that apply) : 5 No formal school curriculum was provided
school_engage_cv___6	How is your child engaging in their school's curriculum (check all that apply) : 6 Not sure
school_nutrition_cv	Did your child get breakfast and/or lunch from your school?
school_prep_cv	How prepared do you think your child will be for next school year?
school_prep_new_cv	How prepared do you think your child is for this new school year?
school_reopen_date_cv	Date your child's school re-opened:

school_reopen_date_dk_cv	Has your child's school re-opened?
separate_people_cv___1	Check all that apply(child had a hard time being separated due to the impact of coronavirus): 1 Parent/guardian
separate_people_cv___2	Check all that apply(child had a hard time being separated due to the impact of coronavirus): 2 Grandparent(s)
separate_people_cv___3	Check all that apply(child had a hard time being separated due to the impact of coronavirus): 3 Sibling/half-sibling/step-sibling(s)
separate_people_cv___4	Check all that apply(child had a hard time being separated due to the impact of coronavirus): 4 Other relative(s)
separate_people_cv___5	Check all that apply(child had a hard time being separated due to the impact of coronavirus): 5 Friend(s)
separate_people_cv___6	Check all that apply(child had a hard time being separated due to the impact of coronavirus): 6 Teacher(s)
separate_people_cv___7	Check all that apply(child had a hard time being separated due to the impact of coronavirus): 7 Coach(es)
separate_people_cv___8	Check all that apply(child had a hard time being separated due to the impact of coronavirus): 8 Other adult
talk_cancel_cv	Cancellation of school and other events
talk_conserve_cv	Conserving food or other items
talk_isolate_cv	Avoiding visiting friends or family
talk_mask_cv	The importance of wearing a mask
talk_race_cv	Racism or discrimination in relation to coronavirus
talk_social_distance_cv	The importance of social distancing
talk_symptoms_cv	The symptoms of coronavirus
talk_vuln_cv	Protecting the elderly or other vulnerable people
talk_wash_cv	The importance of hand washing for preventing the spread of germs
tool_access_cv	Does your child have access to the things needed(such as a laptop) to do their school work at home?
went_to_school_cv	Has your child participated in school the past week?
work_ability_cv	Is your role caring for your child conflicting with your work responsibilities?

su_p_vape_loc_cv___888	Where did you use vapes? (check all that apply) : 888 Question has not been asked due to previous question response.
su_p_mj_vape_loc_cv___888	Where did you vape a marijuana or cannabis product? (check all that apply) : 888 Question has not been asked due to previous question response.
su_p_mj_smoke_loc_cv___888	Where did you smoke a marijuana or cannabis product? (check all that apply) : 888 Question has not been asked due to previous question response.
su_p_cig_loc_cv___888	Where did you use cigarettes? (check all that apply) :888 Question has not been asked due to previous question response.
collection_title	collection_title
study_cohort_name	study_cohort_name

eMethods (cont)

Use of CCA

      We opted for canonical correlation analysis (CCA) as the method suggests itself for probing cross-associations between variable sets in a transparent and intuitively interpretable way (as it is a linear model). While we considered a hypothesis-driven approach, we ultimately selected a hypothesis-agnostic (i.e., data-driven approach). In other words, given the highly unprecedented nature of the COVID-19 pandemic and the associated response measures, we selected an approach that could simultaneously assess all possible hypotheses. While data-driven, we note that CCA is nonetheless a linear model and hence transparent to the same degree that linear regression and Pearson correlation analyses are transparent. It is for this reason that we selected CCA over other, more 'black box' algorithms; e.g., recurrent neural networks. As such, CCA allows for transparent assessment of relationships between high dimensional variable sets, identifying cohesive 'modes' of variation that link between each dataset.

Type II error and CCA:

      Importantly, in CCA, statistical significance is evaluated at the mode level; not at the level of individual variables of a given mode. This is important, as it means that our CCA approach did not involve null hypotheses testing of any single questionnaire items or health indicators. Rather, our CCA analyses is completely multivariate—in that it simultaneously considered the relationship between all baseline items and all COVID-19 questionnaire items. In other words, the null hypothesis we evaluated was whether an empirical multivariate relationship between baseline assessments and COVID-19 assessments would be detectable (i.e., robust to other sources of variance). Our elected approach therefore appropriately handled Type I and Type II errors in the context of the resulting CCA components.

      We further note that our approach is consistent with other recent (non-COVID-related) analyses in general from our own [7,8] and others' [9,10] population neuroscience studies, including recent analyses of ABCD [11].

Data cleaning

      We conducted the following standard data cleaning steps: (1) categorical data columns were transformed to separate binary-encoded data columns; (2) non-response entries (e.g., '999' or '777') were converted to indicate missing values; (3) data columns with >50% missing values were removed entirely; (4) variables for which <250 out of ~10,000 families showed a response different from the majority response were excluded; and (5) missing data imputation was performed using non-parametric single-column replacement.

Data preprocessing

      To prepare for multivariate pattern analysis, the full collection of baseline items underwent commonly carried out cleaning steps (details in SI). These recommended data cleaning procedures

are consistent with those used in similar prior multivariate pattern analyses[12,13]. To avoid overfitting, principal component analysis was applied to the final set of baseline and COVID-19 questionnaire items, consistent with prior work and current statistical practice[14-16].

Defining vaccination rates

State-level vaccination rates were defined using CDC data, obtained at https://covid.cdc.gov/covid-data-tracker/#vaccinations and accessed on May 3rd, 2021.

Python Code for Analyses

PCA:

```
# In [27]: X_ss.shape
# Out[27]: (9267, 6402)

# In [28]: Y_ss.shape
# Out[28]: (9267, 281)

# X_std = X_ss.std(0) # get p lower than n to prepare for PCA
# idx_topvar = np.argsort(X_std)[::-1]
# X_ss = X_ss[:, idx_topvar[:7500]]
# X_cols = np.array(X_cols)[idx_topvar[:7500]]

x_pca = PCA(n_components=250)
y_pca = PCA(n_components=50)

X_ss_pca = x_pca.fit_transform(X_ss)
Y_ss_pca = y_pca.fit_transform(Y_ss)
```

CCA:
```
#
n_permutations = 1000
cur_X = np.array(X_ss_pca)
cur_Y = np.array(Y_ss_pca)
perm_rs = np.random.RandomState(0)
perm_Rs = []
perm_scores = []
n_except = 0
for i_iter in range(n_permutations):
    print(i_iter + 1)
```

```python
        # perm_rs.shuffle(cur_Y)

        cur_X_perm = np.array([perm_rs.permutation(sub_entry) for sub_entry in cur_X])
        # cur_X_perm = np.array([perm_rs.permutation(col_entry) for col_entry in cur_X.T]).T
        # perm_idx = np.arange(len(cur_Y))
        # perm_rs.shuffle(perm_idx)
        # cur_Y_perm = cur_Y[perm_idx]

        # same procedure, only with permuted subjects on the right side
        try:
            perm_cca = CCA(n_components=n_comp, scale=True)

            # perm_inds = np.arange(len(Y_netmet))
            # perm_rs.shuffle(perm_inds)
            # perm_cca.fit(X_nodenode, Y_netnet[perm_inds, :])
            perm_cca.fit(cur_X_perm, cur_Y)

            perm_R = np.array([pearsonr(X_coef, Y_coef)[0] for X_coef, Y_coef in
                zip(perm_cca.x_scores_.T, perm_cca.y_scores_.T)])
            cur_score = perm_cca.score(cur_X, cur_Y)
            print(np.sort(perm_R)[::-1][:10])
            print(cur_score)
            perm_Rs.append(perm_R)
            perm_scores.append(cur_score)
        except:
            n_except += 1
            perm_Rs.append(np.zeros(n_keep))
perm_Rs = np.array(perm_Rs)


pvals = []
for i_coef in range(n_comp):
    cur_pval = (1. + np.sum(perm_Rs[1:, 0] > actual_Rs[i_coef])) / n_permutations
    pvals.append(cur_pval)
    print(cur_pval)
pvals = np.array(pvals)
print('%i CCs are significant at p<0.05' % np.sum(pvals < 0.05))
print('%i CCs are significant at p<0.01' % np.sum(pvals < 0.01))
print('%i CCs are significant at p<0.001' % np.sum(pvals < 0.001))

# 9 CCs are significant at p<0.05
# 9 CCs are significant at p<0.01
# 0 CCs are significant at p<0.001

# pvals = []
# for i_coef in range(n_comp):  # COMP-WISE comparison to permutation results !!!
```

```
#     cur_pval = (np.sum(perm_Rs[:, i_coef] > actual_Rs[i_coef])) / n_permutations
#     pvals.append(cur_pval)
#     # print cur_pval
# pvals = np.array(pvals)[inds_max_to_min]
# print(pvals)
# print('%i CCs are significant at p<0.05' % np.sum(pvals < 0.05))
# print('%i CCs are significant at p<0.01' % np.sum(pvals < 0.01))
# print('%i CCs are significant at p<0.001' % np.sum(pvals < 0.001))

# CCA
from sklearn.cross_decomposition import CCA, PLSRegression

n_comp = 10
# est = PLSRegression(n_components=n_comp, scale=False)  # ALWAYS de-means internally
!!
est = CCA(n_components=n_comp, scale=True) # ALWAYS de-means internally !!
est.fit(X_ss_pca, Y_ss_pca)
# est.fit(X_ss, Y_ss)

actual_Rs = np.array([pearsonr(X_coef, Y_coef)[0] for X_coef, Y_coef in
    zip(est.x_scores_.T, est.y_scores_.T)])
inds_max_to_min = np.argsort(actual_Rs)[::-1]
actual_Rs_sorted = actual_Rs[inds_max_to_min]
print(actual_Rs_sorted[:n_comp])

# no PCA (original analysis, overfitting)
# [0.99970832 0.98004634 0.85277093 0.80367204 0.73783929 0.71751736
# 0.70893447 0.70248758 0.69439959 0.67603569]
# with PCA (100, 50)
# [0.80475812 0.62495744 0.55836287 0.55529943 0.52400954 0.48935878
# 0.44203503 0.41503804 0.39069389 0.35767381]
# with PCA (250, 50)
# [0.80308278 0.62164767 0.58197873 0.55747482 0.52265651 0.48801407
# 0.44204226 0.43137429 0.3704658  0.34755219]


OUTDIR = 'results_crossdecomp_repl3'
```

Example code used for cross-validated predictions of ABCD variables (Figures 2 & 4):

```
# Racism or discrimination in relation to coronavirus?
from sklearn.linear_model import LogisticRegression
from sklearn.svm import SVC
from sklearn.model_selection import StratifiedKFold, cross_val_score

lr = LogisticRegression(fit_intercept=True)
```

```python
tar_y = np.squeeze(Y[:, Y_cols == 'talk_race_cv'] >= 4).astype(np.int)
folder = StratifiedKFold(shuffle=True, n_splits=10)
acc = cross_val_score(
  estimator=lr,
  X=est.y_scores_, y=tar_y,
  cv=folder,
  n_jobs=4)

print(acc.mean())
print(acc.std())

lr.fit(X=est.y_scores_, y=tar_y)
print(lr.score(X=est.y_scores_, y=tar_y))
# 1.0

bs_coefs = []
np.random.seed(0)
for i_bs in range(100):
  bs_idx = np.random.randint(0, len(tar_y), len(tar_y))

  lr.fit(est.y_scores_[bs_idx], tar_y[bs_idx])
  is_acc = lr.score(est.y_scores_[bs_idx], tar_y[bs_idx])
  print(is_acc)

  print(idx_OOB.sum())
  idx_OOB = ~np.in1d(np.arange(len(tar_y)), bs_idx)
  oob_acc = lr.score(est.y_scores_[idx_OOB], tar_y[idx_OOB])

  bs_coefs.append(lr.coef_)

bs_coefs = np.squeeze(bs_coefs)
plt.figure(figsize=(6, 4))
plt.boxplot(bs_coefs)
plt.xlabel('mode')
plt.ylabel('never/occasionally vs. frequently\n(mean effect +/- bootstrap population intervals)')
plt.title(f'Racism or discrimination in relation to coronavirus?\n')
# plt.title('Classifying witnessing of racial discrimination from COVID19 items\nAccuracy in
new families: %d.2%%' % (np.mean(oob_acc) * 100))
plt.tight_layout()
plt.savefig(OUTDIR + f'/boxplot_racism_discr_classif.png')
plt.close('all')
```

Example code used for cross-validated predictions of external variables (Figure 5):

```python
y_dem = np.array(dfbase_['election_2020'] == 'democrat')
from sklearn.linear_model import LogisticRegression
lr = LogisticRegression(fit_intercept=True)
bs_coefs = []
np.random.seed(0)
for i_bs in range(100):
  bs_idx = np.random.randint(0, len(y_dem), len(y_dem))

  lr.fit(est.y_scores_[bs_idx], y_dem[bs_idx])
  is_acc = lr.score(est.y_scores_[bs_idx], y_dem[bs_idx])
  print(is_acc)

  print(idx_OOB.sum())
  idx_OOB = ~np.in1d(np.arange(len(y_dem)), bs_idx)
  oob_acc = lr.score(est.y_scores_[idx_OOB], y_dem[idx_OOB])

  bs_coefs.append(lr.coef_)

bs_coefs = np.squeeze(bs_coefs)
plt.figure(figsize=(6, 4))
plt.boxplot(bs_coefs)
plt.xlabel('mode')
plt.ylabel('republican vs. democrat\n(mean effect +/- bootstrap population intervals)')
plt.title('Classifying political affiliation from COVID19 items\nAccuracy in new families:
%d.2%%' % (np.mean(oob_acc) * 100))
plt.tight_layout()
plt.savefig(OUTDIR + f'/boxplot_election_2020_classif.png')
plt.savefig(OUTDIR + f'/boxplot_election_2020_classif.pdf')
plt.savefig(OUTDIR + f'/boxplot_election_2020_classif.eps')
plt.savefig(OUTDIR + f'/boxplot_election_2020_classif.tiff')

plt.ylim(-1, +1)
plt.savefig(OUTDIR + f'/boxplot_election_2020_classif_fixedylim.png')
plt.savefig(OUTDIR + f'/boxplot_election_2020_classif_fixedylim.pdf')
plt.savefig(OUTDIR + f'/boxplot_election_2020_classif_fixedylim.eps')
plt.savefig(OUTDIR + f'/boxplot_election_2020_classif_fixedylim.tiff')
plt.close('all')
```

eTable 4. Top 20 Loadings Mode 1 ABCD Baseline		
Variable	**Loading**	**Description**
household.income [<50K]	0.074922	Household combined income (baseline only)
household.income.bl [<50K]	0.074922	Household combined income (baseline value carry forward)
latent_factor_ss_general_ses	-0.07408	Latent SES variable
race_ethnicity White	-0.07401	Race Ethnicity (Child)
household.income [>=100K]	-0.0714	Household combined income (baseline only)
household.income.bl [>=100K]	-0.0714	Household combined income (baseline value carry forward)
genetic_ancestry_factor_european	-0.07062	Proportion of European ancestry
meim_ethnic_id_p White/Caucasian	-0.06867	In terms of ethnic group, I consider myself to be:
demo_race_a_p 10 not endorsed	0.06697	What race do you consider the child to be?
demo_race_a_p 10 White	-0.06697	What race do you consider the child to be?
demo_prnt_race_a_p 10 not endorsed	0.064953	What race do you consider yourself to be? (Parent)
demo_prnt_race_a_p 10 White	-0.06495	What race do you consider yourself to be? (Parent)
genetic_ancestry_factor_african	0.062154	Proportion of African ancestry
high.educ.bl Post Graduate Degree	-0.05934	Highest education of parents (baseline value carry forward)
high.educ Post Graduate Degree	-0.05934	Highest education of parents (baseline only)
race.4level White	-0.05837	4-level derived race variable (assume invariant overtime)
race.6level White	-0.05837	6-level derived race variable (assume invariant overtime)
demo_fam_roster_2c_p Husband or wife	-0.05766	Person #2, relationship to you (Person #1):
reshist_addr1_adi_pov	0.057344	Residential history derived - Area Deprivation Index: Percentage of families below the poverty level 1
nihtbx_picvocab_theta	-0.057	NIH Toolbox Picture Vocabulary Test Age 3+ v2.0 Theta

eTable 5. Top 20 Loadings Mode 1 COVID Baseline		
Variable	**Loading**	**Description**
talk_conserve_cv	0.214422	Conserving food or other items
fam_exp1_cv	0.211704	Were you ever worried about whether your food would run out before you could get more?
cv_p_select_language 1	0.199034	Espanol? (asking if the assessment should be given in Spanish)
fam_exp7_v2_cv	-0.19874	If you lost all your current source(s) of household income (your paycheck public assistance or other forms of income) how long could you continue to live at your current address and standard of living?
fam_exp2_cv	0.190812	Needed food but couldn't afford to buy it or couldn't afford to get out to get it?
p_enjoy_cv	-0.18095	Are you able to enjoy things?
fam_exp4_cv	0.180214	Didn't pay the full amount of the rent or mortgage because you could not afford it?
talk_symptoms_cv	0.165456	The symptoms of coronavirus
talk_wash_cv	0.138453	The importance of hand washing for preventing the spread of germs
fam_exp_racism_cv	0.137677	I am worried that our family will experience racism or discrimination in relation to coronavirus
caregiver_cv	-0.13681	Is there another adult who usually helps with caregiving responsibilities?
p_cope_cv 4	-0.13617	In the past week to cope have you done any of the following? (check all that apply) : 4 Exercised (such as walking running or an online exercise class)
money_cv	0.134062	Over the past week: I worried that my family would not have enough money to pay for necessities like clothing or bills.
child_sleep_amount_cv	0.131658	How many hours of sleep does your child get on most nights?
school_nutrition_cv	0.125584	Did your child get breakfast and/or lunch from your school?
outdoor_act_cv	-0.12348	Over the past week: I did outdoor activities...
fam_exp3_cv	0.122446	Were without telephone service because you could not afford it?
think_will_get_cv	-0.12194	I think it is likely that someone very close to me will get coronavirus
pets_cv	-0.11819	Do you currently have any pets?
talk_race_cv	0.115004	Racism or discrimination in relation to coronavirus

eTable 6. Top 20 Loadings Mode 2 ABCD Baseline		
Variable	**Loading**	**Description**
cbcl_select_language_p_<font color="blue">Si	-0.077532454	Language selection for assessment, english or spanish
famhx_3f_yng_p	-0.057205117	# of younger full siblings (please do not include a co-twin here as ABCD considers twins equal in age)
medhx_2a_asthma_p_No	-0.054419834	Asthma?
demo_roster_p	-0.054065699	How many people are living at your address?
famhx_3a_p	-0.05322943	# brother (s)
demo_fam_roster_4c_p Biological son or daughter	-0.053102153	Person #4, relationship to you:
demo_prnt_marital_p_Married	-0.051934463	Are you now married, widowed, divorced, separated, never married or living with a partner?
married yes	-0.051934463	Parents married? (baseline only)
married.bl_yes	-0.051934463	Parents married? (baseline value carry forward)
medhx_6l_asthma_p_No	-0.051588787	Since we last saw you, has she/he been to a doctor for any of these things? Has he/she ever been to a doctor, a nurse, nurse practitioner, the emergency room or a clinic because any of these things happened...Asthma Attack
famhx_3b_p	-0.05143859	# sister (s)
married.or.livingtogether_yes	-0.051382893	Parents married or live together? (baseline only)
married.or.livingtogether.bl_yes	-0.051382893	Parents married or live together? (baseline value carry forward)
macvs_ss_r_p	-0.051355074	MACVS Religion Subscale, Mean: (mex_american1_p + mex_american6_p + mex_american11_p + mex_american15_p + mex_american20_p + mex_american25_p) + mex_american28_p)/7
demo_prnt_empl_p_Stay at Home Parent	-0.050692859	Are you working now, looking for work, retired, stay at home parent, a student, or something else?
demo_yrs_2_p_Very	-0.048995201	In general, how important are your child's religious and spiritual beliefs in his/her daily life?
demo_prnt_prtnr_bio_p_Yes	-0.048990372	Is your partner the child's biological parent?
medhx_2b_allergies_p_No	-0.048686527	Has she/he ever been to a doctor for any of these things… Allergies
medhx_2b_allergies_p_Yes	0.048686527	Has she/he ever been to a doctor for any of these things… Allergies
demo_prnt_empl_time_p_Full time	0.050660639	Working Full time or Part time?

eTable 7. Top 20 Loadings Mode 2 COVID Baseline*		
Variable	**Loading**	**Description**
cv_p_select_language 1	-0.30112	Espanol? (asking if the assessment should be given in Spanish)
fam_size_cv	-0.2262	How many people are living at your address? INCLUDE yourself and everyone who is living or staying at your place this week.
child_care_impact_cv 3	0.159927	In what ways has the COVID-19 outbreak impacted your child's overall healthcare? (check all that apply) : 3 My child's healthcare provider changed to phone or online visits
worry_about_cv	-0.15813	I think all of this worry about coronavirus is blown out of proportion
child_fall_asleep_time_cv	0.15783	How long after going to bed does your child usually fall asleep?
iep_cv	0.147131	Does your child have an IEP or 504 plan?
school_difficulty	0.142848	How easy or difficult was it for your child to complete school work remotely?
work_ability_cv	0.142361	Is your role caring for your child conflicting with your work responsibilities?
child_diag_asthma_cv	0.13558	Has your child ever been diagnosed with asthma?
household_ability_cv	0.130615	Is your role caring for your child conflicting with your household responsibilities?
percent_live_cv	-0.12701	What percent of the time did your child live with you?
prim_cv	0.122484	You are the:
child_sleep_amount_cv	0.121571	How many hours of sleep does your child get on most nights?
fam_actions_cv 7	-0.12119	In the past week our family has (check all that apply; by your choice rather than because it's closed): 7 Avoided restaurant take-out
encouraged_cv	-0.12038	I have encouraged my child not to focus on coronavirus or its impacts on people and the world
caregiver_cv	-0.12035	During this period of school closure are you the primary (or co-primary) person responsible for your child's care during the day?
mctq_fd_min_to_sleep_cv	0.115914	Report on your typical sleep behavior over the past week. : I need _____ minutes to fall asleep.
homework_help_time_cv	0.114689	How many hours per day did you spend helping your child access or complete their schoolwork?
child_texting_time_cv	0.113975	through texting :Hours
school_prep_cv	-0.1122	How prepared do you think your child will be for next school year?

*All of the top 20 baseline items for Mode 2 corresponding to language selection (English vs. Spanish). Given this redundancy, the top 20 unique items are listed here. Note that inclusion of redundant items does not influence CCA results.

eTable 8. Top 10 Loadings Mode 3 ABCD Baseline		
Variable	**Loading**	**Description**
famhx_3f_yng_p	-0.110188197	# of younger full siblings
demo_roster_p	-0.097266808	How many people are living at your address?
demo_relig_p Mormon (Church of Jesus Christ of Latter Day Saints/LDS)	-0.092269858	What is the child's religious preference? Mormon
famhx_3a_p	-0.084591423	# brother (s)
abcd_site__site16	-0.083199328	Site ID
site_id_l__site16	-0.083199328	Site ID
site16	-0.083199328	Site ID
reshist_addr1_elevation	-0.078165796	Residential history derived elevation 1
famhx_q4k_full_sib_yng2_alc_p___0_not endorsed	0.077713512	Full sibling-younger Alcohol Problems?
famhx_q4k_full_sib_yng2_alc_p___0__No Problems	-0.077713512	Full sibling-younger Alcohol Problems?

eTable 9. Top 10 Loadings Mode 3 COVID Baseline		
Variable	**Loading**	**Description**
fam_size_cv	-0.32328	How many people are living at your address? INCLUDE yourself and everyone who is living or staying at your place this week.
child_fall_asleep_time_cv	-0.16933	How long after going to bed does your child usually fall asleep?
household_ability_cv	-0.1624	Is your role caring for your child conflicting with your household responsibilities?
school_nutrition_cv	-0.15347	Did your child get breakfast and/or lunch from your school?
cv_p_select_language___1	0.153394	Language selection for assessment, english or spanish
social_media_platform_cv	-0.14969	The following questions ask about your use of different forms of media (television, social media, and other internet sources) to check for news related to the coronavirus pandemic in the past week. Which platform did you use the most when checking for news related to coronavirus?
screentime_wknd_typical_hr_cv	0.147316	On a typical day, how much TIME per day do you spend in TOTAL connecting with friends digitally (all forms listed above included)?
fam_actions_cv___3	0.146007	In the past week our family has (check all that apply; by your choice rather than because it's closed): 3 Avoided gatherings of 10 people or more
questionnaire_privacy_cv	-0.14577	How much privacy did you have while you were completing this questionnaire today?
homework_help_time_cv	-0.13871	How many hours per day did you spend helping your child access or complete their schoolwork?

eTable 10. Top 10 Loadings Mode 4 ABCD Baseline		
Variable	**Loading**	**Description**
sex_at_birth__F	-0.09357	Sex at Birth
demo_sex_p__Female	-0.09357	Sex at Birth
female__yes	-0.09357	Subject is female?
female__no	0.093572	Subject is female?
sex_at_birth__M	0.093572	Sex at Birth
pubertdev_ss_male_category2_nt_p	0.093539	Puberty Developmental Scale; Number Total Questions; Parent
demo_sex_p__Male	0.093495	Sex at Birth
pubertdev_ss_male_category2_nt	0.093462	Puberty Developmental Scale; Number Total Questions; Child
demo_gender_id_p__Female	-0.09338	What is the child's current gender identity?
biospec_hormone_sal_sex__Pink/Purple (female)	-0.09333	Hormone saliva sample tube cap color

eTable 11. Top 10 Loadings Mode 4 COVID Baseline		
Variable	**Loading**	**Description**
mctq_fd_btime_cv	-0.24235	Report on your typical sleep behavior over the past week. : I go to bed at:
screentime_12_wknd_hr_cv	-0.23343	Visit social media apps (e.g., Snapchat, Facebook, Twitter, Instagram, TikTok, etc.? (Do not include time spent editing photos or videos to post on social media.)
mctq_fd_time_asleep_cv	-0.23107	Report on your typical sleep behavior over the past week. : I actually start trying to fall asleep at:
mctq_fd_wake_up_time_cv	-0.20997	Report on your typical sleep behavior over the past week. : I wake up at:
screentime_10_wknd_hr_cv	0.200653	Play multiplayer video games on a computer, console, phone, or other device (Xbox, PlayStation, iPad, AppleTV) where you can interact with others in the game?
child_social_media_time_cv	-0.18905	Social media (including Facebook Youtube TikTok Snapchat etc) :Hours (round 1 and 2)
iep_cv	0.18308	Does your child have an IEP or 504 plan?
screentime_9_wknd_hr_cv	0.167436	Play single-player video games on a computer, console, phone or other device (Xbox, PlayStation, iPad, AppleTV)?
social_media_platform_cv	0.16416	The following questions ask about your use of different forms of media (television, social media, and other internet sources) to check for news related to the coronavirus pandemic in the past week. Which platform did you use the most when checking for news related to coronavirus?
parent_monitor_q4_y_cv	-0.15316	About your life over the past week:How often do you talk to your mom/dad or guardian about your plans for the coming day, such as your plans about what will happen at school (or school-at-home) or what you are going to do?

eTable 12. Top 10 Loadings Mode 5 ABCD Baseline		
Variable	**Loading**	**Description**
sports_activity_ss_read_p	0.087124	About how many hours per week does your child spend reading for pleasure
sports_activity_read_years_p	0.086364	Reading Leisure: For how many years has your child read for pleasure?
sports_activity_ss_read_years_p	0.086364	For how many years has your child read for pleasure?
sports_activity_read_p__No	-0.07757	Does your child read for pleasure?
sports_activity_read_p__Yes	0.077525	Does your child read for pleasure?
scrn_hr_read	0.069203	Enjoys reading?
screentime_2_hours_p	-0.06752	On a typical WEEKEND DAY, how much TIME does your child spend on a computer, cellphone, tablet, or other electronic device?
genetic_ancestry_factor_african	0.066372	Proportion of African ancestry
screentime_ss_weekday	-0.0662	Total Weekday Screentime
demo_prnt_race_a_p___10__not endorsed	0.06593	What race do you consider yourself to be?

eTable 13. Top 10 Loadings Mode 5 COVID Baseline		
Variable	**Loading**	**Description**
screentime_10_wknd_hr_cv	-0.20743	Play multiplayer video games on a computer, console, phone, or other device (Xbox, PlayStation, iPad, AppleTV) where you can interact with others in the game?
pets_cv	-0.19337	Do you currently have any pets?
child_gaming_time_cv	-0.17389	Through multiple-player video games : hours (Question for round 1 and 2)
pet_identify_cv___1	-0.16382	Please select all the pets that you currently have: 1, Dog
extra_material_cv	0.158631	Did you or your child supplement the educational materials provided by the school with other sources (e.g. Khan Academy)?
child_avg_elec_time_cv	-0.14978	On an average day this week how much Hours per day does your child spend in TOTAL on a computer cell phone tablet iPod or other electronic device? Do NOT include time spent on school related work but do include watching TV shows or videos texting or chatting playing games or visiting social networking sites? (Facebook Twitter Instagram).
screentime_9_wknd_hr_cv	-0.1458	Play single-player video games on a computer, console, phone or other device (Xbox, PlayStation, iPad, AppleTV)?
screentime_wknd_hr_cv	-0.14244	On a typical day, how much TIME per day do you spend in TOTAL on a computer, phone, tablet, iPod, or other device or video game? (Do NOT include time spent on school work)
school_prep_cv	0.140756	How prepared do you think your child will be for next school year?
child_sched_cv	0.129826	I have designed a daily schedule for my child while school is out

eTable 14. Top 10 Loadings Mode 6 ABCD Baseline		
Variable	**Loading**	**Description**
demo_gender_id_p_Male	0.084927	What is the child's current gender identity?
pubertdev_sex_Female	-0.0849	Do you consider yourself male or female?
pubertdev_sex_Male	0.084793	Do you consider yourself male or female?
pubertdev_ss_male_cat_nt	0.084793	Pubertal Developmental Scale Youth, Male Category: Number Total Questions
pubertdev_ss_male_category2_nt	0.084776	Puberty Developmental Scale; Number Total Questions
demo_sex_p_Male	0.084736	Sex at Birth
female_yes	-0.08466	Subject is female?
sex_at_birth_F	-0.08466	Sex at Birth
demo_sex_p_Female	-0.08466	Sex at Birth
female_no	0.084655	Subject is female?

eTable 15. Top 10 Loadings Mode 6 COVID Baseline		
Variable	**Loading**	**Description**
child_gaming_time_cv	0.198183	Through multiple-player video games : hours (Question for round 1 and 2)
child_separate_cv	-0.18008	Is your child having a hard time being separated from anyone close due to the impact of coronavirus? Le cuesta a su hijo/a estar separado/separada de alguien cercano debido al impacto del coronavirus
screentime_10_wknd_hr_cv	0.172156	Play multiplayer video games on a computer, console, phone, or other device (Xbox, PlayStation, iPad, AppleTV) where you can interact with others in the game?
separate_people_cv___5	-0.16825	Check all that apply(child had a hard time being separated due to the impact of coronavirus): 5 Friend(s)
mctq_fd_min_to_sleep_cv	-0.16373	Report on your typical sleep behavior over the past week. : I need ____ minutes to fall asleep.
cv_p_select_language___1	-0.15036	Language selection for assessment, english or spanish
pstr_unable_control_cv	-0.14831	In the last month, how often have you felt that you were unable to control the important things in your life?
mctq_fd_min_to_get_up_cv	-0.14768	Report on your typical sleep behavior over the past week. : After ____ minutes I get up.
pstr_overcome_p_cv	-0.14308	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
separate_people_cv___1	-0.13372	Check all that apply(child had a hard time being separated due to the impact of coronavirus): 1 Parent/guardian

eTable 16. Top 10 Loadings Mode 7 ABCD Baseline		
Variable	**Loading**	**Description**
scrn_hr_sport	0.074675	Enjoys playing sports?
sports_activity_ss_lmusic_p	0.065832	Music About how many hours per week does your child spend listening to music for pleasure
upps_ss_sensation_seeking	0.061212	UPPS-P for Children Short Form (ABCD-version), Sensation Seeking: Number Total Questions
sports_activity_lmusic_p_Yes	0.057416	Does your child listen to music for pleasure?
sports_activity_lmusic_p_No	-0.05737	Does your child listen to music for pleasure?
sports_activity_ss_lmusic_years_p	0.055583	For how many years has your child listened to music for pleasure?
sports_activity_lmusic_years_p	0.055583	For how many years has your child listened to music for pleasure?
snellen_aid__No	0.054744	Do you wear any necessary corrective aids (glasses, contacts)?
snellen_aid__Yes	-0.05433	Do you wear any necessary corrective aids (glasses, contacts)?
sports_activity_ss_soc_nyr_p	0.05154	Soccer : For how many years did your child participate in this activity?

eTable 17. Top 10 Loadings Mode 7 COVID Baseline		
Variable	**Loading**	**Description**
outdoor_act_cv	0.245184	Over the past week: I did outdoor activities...
walk_10_min_per_day_cv	0.224394	During the past week, on how many days did you walk for at least 10 minutes at a time?
physical_activities_hr_cv	0.222292	During the past week, on how many days did you do moderate or vigorous physical activities like heavy lifting, running, aerobics, or bicycling? (Moderate or vigorous physical activities refer to activities that take moderate to hard physical effort and make you breathe harder than normal)
demo_exercise_cv	0.214242	I exercise or play outside
separate_people_cv 7	0.149635	Check all that apply(child had a hard time being separated due to the impact of coronavirus): 7 Coach(es)
pets_cv	0.147335	Do you currently have any pets?
talk_cancel_cv	0.130911	Cancellation of school and other events
school_prep_cv	-0.13089	How prepared do you think your child will be for next school year?
p_cope_cv 2	0.130296	In the past week to cope have you done any of the following? (check all that apply) : 2 Participated in a neighborhood social distance activity (such as decorated windows or driveway singing from balcony or porch)
talk_vuln_cv	0.124361	Protecting the elderly or other vulnerable people

eTable 18. Top 10 Loadings Mode 8 ABCD Baseline		
Variable	**Loading**	**Description**
ksads_back_c_live_full_time_p_No	0.140749909	Does your child live with you full time?
ksads_back_c_live_full_time_p Yes	-0.140484069	Does your child live with you full time?
ksads_back_c_guard_p___2_not endorsed	-0.122021553	Who else does your child live with at least part of the time?
ksads_back_c_guard_p___2_Biological Father	0.122021553	Who else does your child live with at least part of the time?
demo_child_time_p_No	-0.1072942	Is there another household in which the child spends a significant amount of time?
demo_child_time_p_Yes	0.106382519	Is there another household in which the child spends a significant amount of time?
demo_prim_p_ Biological Mother	-0.093736021	You are the:
devhx_1_p_Yes	-0.092715747	Are you the child's biological mother?
devhx_1_p_No	0.092715747	Are you the child's biological mother?
demo_prnt_marital_p_Divorced	0.083567335	Marital Status

eTable 19. Top 10 Loadings Mode 8 COVID Baseline		
Variable	**Loading**	**Description**
percent_live_cv	-0.30096591	What percent of the time did your child live with you?
custody_cv	0.261055156	Has your custody situation changed since the coronavirus/COVID-19 crisis?
prim_cv	0.209826774	You are the: Usted es:
separate_people_cv___1	0.179599084	Check all that apply(child had a hard time being separated due to the impact of coronavirus): 1 Parent/guardian
screentime_7_wknd_hr_cv	-0.164114358	Watch "or stream" movies, videos or TV shows? (such as Hulu, Netflix, Amazon, YouTube, Twitch)
screentime_wknd_hr_cv	-0.163880752	On a typical day, how much TIME per day do you spend in TOTAL on a computer, phone, tablet, iPod, or other device or video game? (Do NOT include time spent on school work)
fam_size_cv	-0.145024177	How many people are living at your address? INCLUDE yourself and everyone who is living or staying at your place this week.
child_gaming_time_cv	-0.137626603	Through multiple-player video games : hours (Question for round 1 and 2)
p_life_changed_cv	-0.134544998	How much do you think your life has changed due to the coronavirus (COVID-19)
screentime_10_wknd_hr_cv	-0.132179868	Play multiplayer video games on a computer, console, phone, or other device (Xbox, PlayStation, iPad, AppleTV) where you can interact with others in the game?

eTable 20. Top 10 Loadings Mode 9 ABCD Baseline		
Variable	**Loading**	**Description**
devhx_ss_8_cigs_per_day_p	0.082012285	Tobacco? How many times per day?
devhx_8_tobacco_p Yes	0.080792224	Before knowing of pregnancy. Tobacco?
demo_fam_exp2_p_No	-0.073909456	In the past 12 months, has there been a time when you and your immediate family experienced any of the following: Were without telephone service because you could not afford it?
demo_fam_exp2_p_Yes	0.072540625	In the past 12 months, has there been a time when you and your immediate family experienced any of the following: Were without telephone service because you could not afford it?
demo_fam_exp1_p_No	-0.068489008	In the past 12 months, has there been a time when you and your immediate family experienced any of the following: Needed food but couldn't afford to buy it or couldn't afford to go out to get it?
pubertdev_sex Female	-0.067850488	Do you consider yourself male or female?
pubertdev_ss_male_category2_nt	0.067721417	Puberty Developmental Scale; Number Total Questions; Child
pubertdev_ss_male_category2_nt_p	0.06770315	Puberty Developmental Scale; Number Total Questions; Parent
demo_sex_p_Female	-0.06765127	Sex at Birth
sex_at_birth_F	-0.06765127	Sex at Birth

eTable 21. Top 10 Loadings Mode 9 COVID Baseline		
Variable	**Loading**	**Description**
su_p_cig_loc_cv___4	0.172052411	Where did you use cigarettes? (check all that apply) : 4 Outside
pstr_confidence_p_cv	0.171145687	In the last month, how often have you felt confident about your ability to handle your personal problems?
fam_exp2_cv	0.163871159	Needed food but couldn't afford to buy it or couldn't afford to get out to get it?
fam_exp3_cv	0.159194484	Were without telephone service because you could not afford it?
tool_access_cv	-0.149671902	Does your child have access to the things needed(such as a laptop) to do their school work at home?
fam_exp4_cv	0.144376869	Didn't pay the full amount of the rent or mortgage because you could not afford it?
su_p_cig_loc_cv___2	0.136976355	Where did you use cigarettes? (check all that apply) : 2 Balcony / deck
child_fall_asleep_time_cv	-0.136414421	How long after going to bed does your child usually fall asleep?
pstr_way_p_cv	0.134096654	In the last month, how often have you felt that things were going your way?
internet_access_cv	-0.131555766	Do you have internet access at home?

eReferences

1.   Garavan H, Bartsch H, Conway K, et al. Recruiting the ABCD sample: Design considerations and procedures. *Developmental Cognitive Neuroscience*. 2018/08/01/ 2018;32:16-22. doi:https://doi.org/10.1016/j.dcn.2018.04.004
2.   Barch DM, Albaugh MD, Avenevoli S, et al. Demographic, physical and mental health assessments in the adolescent brain and cognitive development study: Rationale and description. *Dev Cogn Neurosci*. Aug 2018;32:55-66. doi:10.1016/j.dcn.2017.10.010
3.   Zucker RA, Gonzalez R, Feldstein Ewing SW, et al. Assessment of culture and environment in the Adolescent Brain and Cognitive Development Study: Rationale, description of measures, and early data. *Dev Cogn Neurosci*. Aug 2018;32:107-120. doi:10.1016/j.dcn.2018.03.004
4.   Luciana M, Bjork JM, Nagel BJ, et al. Adolescent neurocognitive development and impacts of substance use: Overview of the adolescent brain cognitive development (ABCD) baseline neurocognition battery. *Dev Cogn Neurosci*. Aug 2018;32:67-79. doi:10.1016/j.dcn.2018.02.006
5.   Lisdahl KM, Sher KJ, Conway KP, et al. Adolescent brain cognitive development (ABCD) study: Overview of substance use assessment methods. *Dev Cogn Neurosci*. Aug 2018;32:80-96. doi:10.1016/j.dcn.2018.02.007
6.   Volkow ND, Koob GF, Croyle RT, et al. The conception of the ABCD study: From substance use to a broad NIH collaboration. *Dev Cogn Neurosci*. Aug 2018;32:4-7. doi:10.1016/j.dcn.2017.10.002
7.   Schurz M, Uddin LQ, Kanske P, et al. Variability in Brain Structure and Function Reflects Lack of Peer Support. *Cereb Cortex*. Aug 26 2021;31(10):4612-4627. doi:10.1093/cercor/bhab109
8.   Clemens B, Derntl B, Smith E, et al. Predictive Pattern Classification Can Distinguish Gender Identity Subtypes from Behavior and Brain Imaging. *Cereb Cortex*. May 14 2020;30(5):2755-2765. doi:10.1093/cercor/bhz272
9.   Smith SM, Nichols TE, Vidaurre D, et al. A positive-negative mode of population covariation links brain connectivity, demographics and behavior. Brief Communication. *Nat Neurosci*. 11//print 2015;18(11):1565-1567. doi:10.1038/nn.4125
http://www.nature.com/neuro/journal/v18/n11/abs/nn.4125.html#supplementary-information
10.   Elliott LT, Sharp K, Alfaro-Almagro F, et al. Genome-wide association studies of brain imaging phenotypes in UK Biobank. *Nature*. Oct 2018;562(7726):210-216. doi:10.1038/s41586-018-0571-7
11.   Modabbernia A, Janiri D, Doucet GE, Reichenberg A, Frangou S. Multivariate Patterns of Brain-Behavior-Environment Associations in the Adolescent Brain and Cognitive Development Study. *Biol Psychiatry*. Mar 1 2021;89(5):510-520. doi:10.1016/j.biopsych.2020.08.014
12.   A Z, A C. *Feature Engineering for Machine Learning*. O'Reilly Media Inc; 2018.
13.   M K, K J. *Feature Engineering and Selection*. CRC Press, Taylor & Francis Group; 2020.
14.   Wang HT, Smallwood J, Mourao-Miranda J, et al. Finding the needle in a high-dimensional haystack: Canonical correlation analysis for neuroscientists. *Neuroimage*. Apr 8 2020;216:116745. doi:10.1016/j.neuroimage.2020.116745
15.   Miller KL, Alfaro-Almagro F, Bangerter NK, et al. Multimodal population brain imaging in the UK Biobank prospective epidemiological study. *Nat Neurosci*. Nov 2016;19(11):1523-1536. doi:10.1038/nn.4393

16. Helmer M, Warrington S, Mohammadi-Nejad A-R, et al. On stability of Canonical Correlation Analysis and Partial Least Squares with application to brain-behavior associations. *bioRxiv*. 2020:2020.08.25.265546. doi:10.1101/2020.08.25.265546