ABCD: Culture and Environment Assessments

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ABCD-ReproNim

Learning Objectives of this Lecture

- Describe the rationale and guiding principles for C&E assessment protocol test selection

- List the domains and instruments that constitute the C&E assessment protocol

- Summarize C&E measures and differences between higher and lower risk participants of the ABCD Study® across measurement waves

- Discuss challenges and future directions of the C&E components of the ABCD Study®

ABCD Data Info & Acknowledgements

ABCD-ReproNim

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- **Developmentally appropriate**
  - Baseline assessments feasible and valid for 9- to 10-year-olds
  - Capture emerging youth behaviors and trends
- **Valid and reliable** measures amenable to **longitudinal assessment**, preferably **across adolescence**
- **Data harmonization** with other large-scale studies
  - Use of PhenX measures when applicable
- Content areas of **cultural measures** applicable to **diverse population** represented in ABCD
- **Very Brief**
  - Baseline C&E had < 10m for youth and caregiver
- Move forward and address the **original aims of ABCD**
  - Aim 1. Establish how diverse patterns of SU impact the structure and function of the developing brain.
  - Aims 2 & 3. Identify the impact of SU on health, psychosocial development, neurocognition, academic achievement, motivation, and emotional regulation. Understand how SU and addiction affect the onset, course, and severity of psychopathology, and vice versa, including the role of DBDs.
  - Aim 4. Identify factors that influence trajectories of SU and its consequences.
  - Aim 5. Establish how use of one substance contributes to use of other substances.

Zucker et al., 2018, DCN
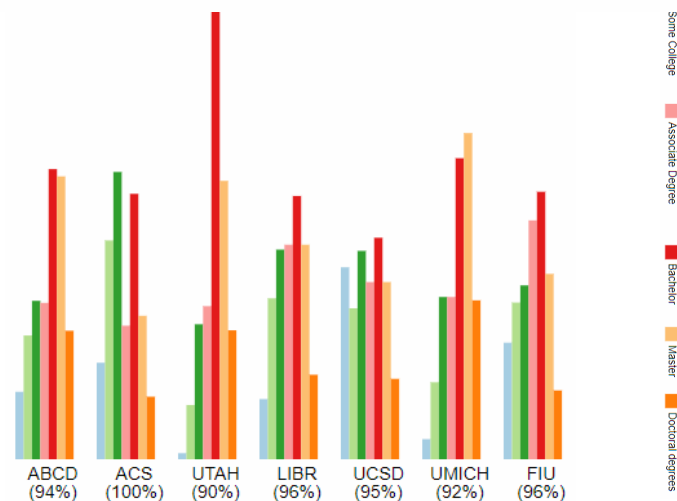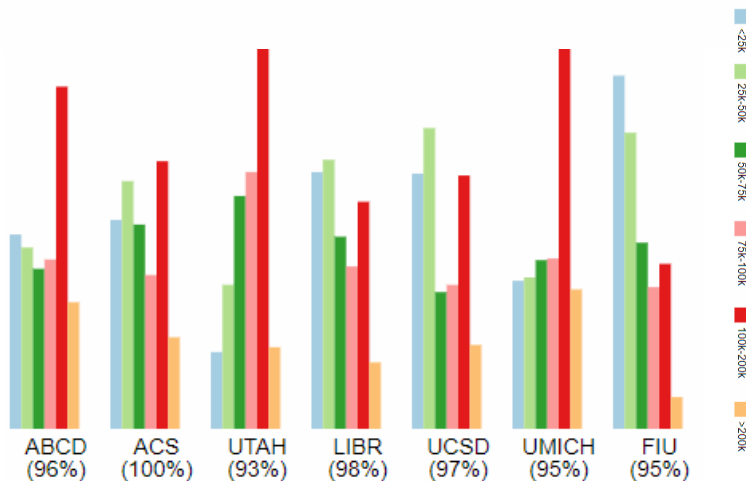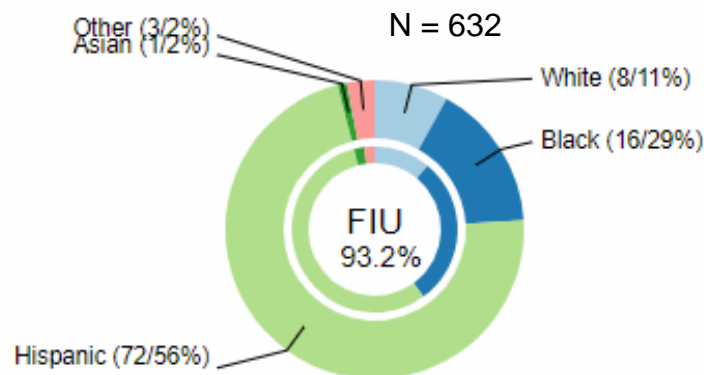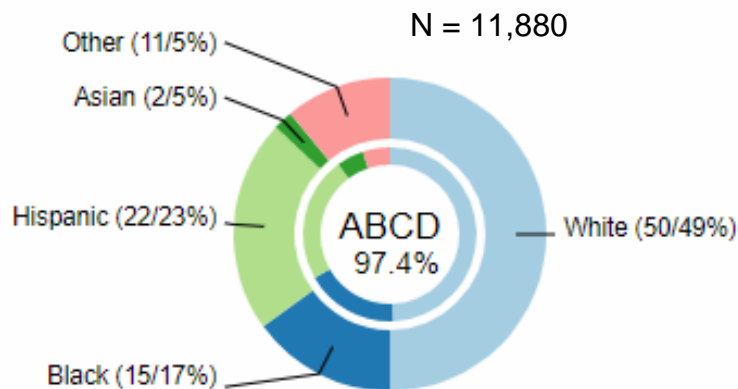
Proportions of Caregiver Assessments at Baseline in Spanish
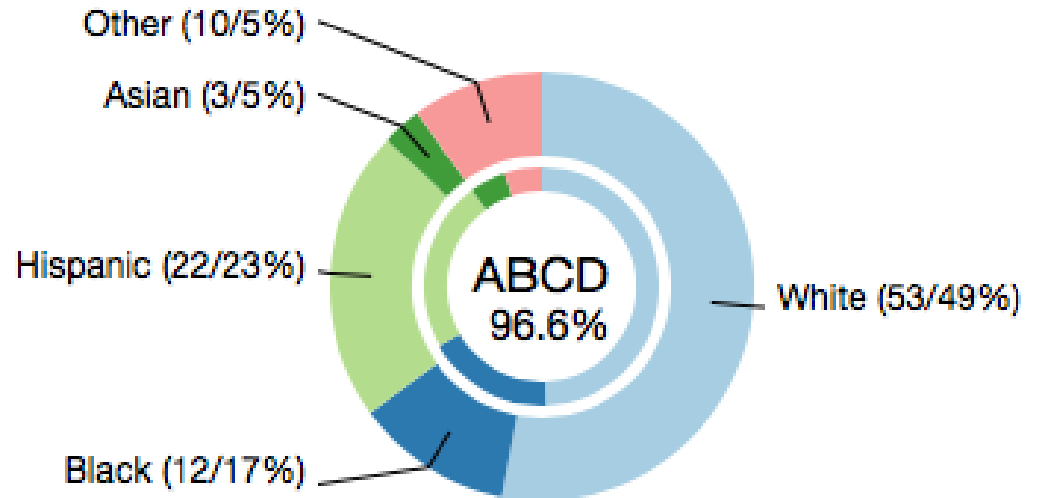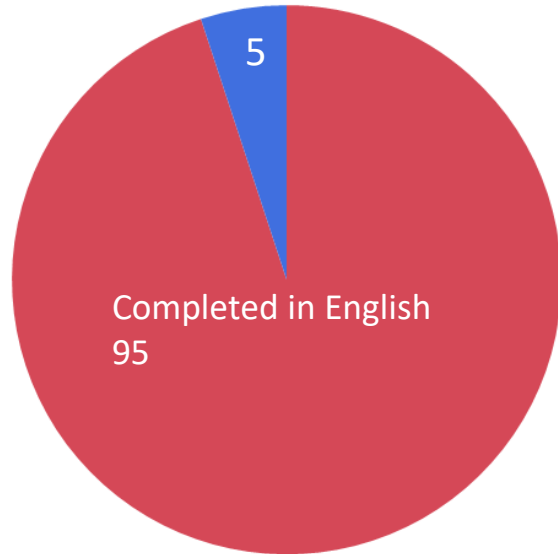
Languages Spoken by Participants in the ABCD Study®

1 = American Sign Language (ASL)
2 = Arabic
3 = Arawak
4 = Bangla
5 = Bosnian
6 = Cantonese
7 = Cham
8 = An American Indian or Alaska Native language
9 = Creole
10 = Croatian
11 = Dutch
12 = Filipino

13 = Finnish
14 = Flemish
15 = French
16 = Frisian
17 = Gaelic
18 = Garifuna
19 = German
20 = Greek
21 = Hakka
22 = Hebrew
23 = Hindi
24 = Hokkien
25 = Hungarian
26 = Italian
27 = Japanese

28 = Jarai
29 = Khmer
30 = Korean
31 = Kuy
32 = Luganda
33 = Mandarin
34 = Nepali
35 = Papiamento
36 = Patois
37 = Persian
38 = Polish
39 = Portuguese
40 = Punjabi
41 = Romanian
42 = Russian

43 = Samoan
44 = Serbian
45 = Sinhala
46 = Sourashtra
47 = Spanish
48 = Stieng
49 = Swahili
50 = Tagalog
51 = Tamil
52 = Telugu
53 = Thai
54 = Turkish
55 = Urdu
56 = Vietnamese
57 = Other

- **Cultural Factors**
  - Cultural practices, acculturation, bi-culturalism
  - Cultural values (self-reliance, familism, religiosity)
  - Ethnic/Racial Identity
  - Discrimination

- **Proximal Environment**
  - Neighborhood and community environment (crime, safety, cohesion)
  - School environment (support, safety, engagement, grades)

- **Family and Social Environment**
  - Positive relationships between parent & child
  - Parental awareness of child's activities
  - Family conflict, cohesion, and activities
  - Peer influence

Zucker et al., 2018, DCN

C&E List of Youth Measures across Measurement Waves

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		Baseline	1 Year Follow up	2 Year Follow up
Strengths & Difficulties Questionnaire - ProSocial Behaviors Subscale		🟩	🟩	🟩
PhenX Acculturation		🟩	🟩	🟩
Parental Monitoring Questionnaire		🟩	🟩	🟩
Child's Report of Parental Behavior Inventory - Acceptance Subscale		🟩	🟩	🟥
Family Environment Scale - Conflict		🟩	🟩	🟩
PhenX Neighborhood Safety & Crime		🟩	🟩	🟩
Phen X School Risk & Protective Factors		🟩	🟩	🟩
Perceived Discrimination Measure		🟥	🟩	🟩
Wills Problem Solving Scale		🟥	🟩	🟥
Mexican American Cultural Values Scale (Family Support)		🟥	🟥	🟩
Mexican American Cultural Values Scale (Family Obligation)		🟥	🟥	🟩
Mexican American Cultural Values Scale (Family Referent)		🟥	🟥	🟩
Peer Behavior Profile: Prosocial Activity/Academic/Rule Breaking		🟥	🟥	🟩
Peer Network Health: Protective		🟥	🟥	🟩
School Attendance and Grades		🟥	🟥	🟩
Time to complete		8m	9m	15m

C&E List of Caregiver Measures across Measurement Waves

		Baseline	1 Year Follow up	2 Year Follow up
Multi-Group Ethnic Identity		🟩	🟩	🟩
Vancouver Index Of Acculturation		🟩	🟥	🟩
Family Environment Scale: Cohesion; Illect-Cult; Active-Recreat; Organiz, Express		🟥	🟥	🟩
P_Family Environment Scale Family Conflict		🟩	🟩	🟩
Prosocial Behaviors (of Youth)		🟩	🟩	🟩
Native American Acculturation Scale		🟩	🟩	🟩
Acculturation		🟩	🟩	🟩
Mexican American Cultural Values Scale (Family Support)		🟩	🟩	🟩
Mexican American Cultural Values Scale (Family Obligation)		🟩	🟩	🟩
Mexican American Cultural Values Scale (Family Referent)		🟩	🟩	🟩
Mexican American Cultural Values Scale (Religion)		🟩	🟩	🟩
Mexican American Cultural Values Scale (Independence/Self Reliance)		🟩	🟩	🟩
Neighborhood Safety & Crime		🟩	🟩	🟩
School Attendance and Grades		🟥	🟥	🟩
Community Cohesion		🟥	🟥	🟩
		9.5m	6m	15m

- Consistency
- Simplicity over Complexity
- Consider typical developmental changes
- Consider emerging youth behaviors and trends
- Consider emerging scientific information
- Coverage of constructs we could not fit in at prior time points
- Minimize burden for families
- Minimize the number of new, additional platforms

- Youth
    - PhenX Acculturation (NLAAS: Alegria et al., 2004; Marin, Sabogal, and Marin, 1987)
        - What language do you speak with most of your friends?
        - What language do you speak with most of your family?
- Caregiver
    - PhenX Acculturation
    - Vancouver Index of Acculturation (Ryder et al., 2000)
        - I enjoy entertainment (e.g. movies, music) from my heritage culture.
        - I enjoy other American entertainment (e.g., movies, music).
    - Multi-Group Ethnic Identity Measure (Phinney and Ong, 2007)
        - I have a strong sense of belonging to my ethnic group.
        - I feel a strong attachment towards my own ethnic group.
    - Mexican-American Cultural Values Scale (Knight et al., 2010)
        - Parents should teach their children that family always comes first.
        - It is always important to be united as a family.
    - Native American Acculturation Scale (Garrett and Pichette, 2000)
        - What contact did your child's Native American parent have with native American communities?
        - Does your family participate in Native American traditions, ceremonies, and so on?

1 year follow-up

- Youth
    - Added: Perceived Discrimination Scale+ (Garnett et al., 2014; Phinney et al., 1998)
        - In the past 12 months, have you felt discriminated against because of your race, ethnicity, or color
        - …because your family is from another country
        - I don't feel accepted by other Americans
- Caregiver
    - Skipped: Vancouver Index of Acculturation

2 year follow-up

- Youth
    - Added: Mexican American Cultural Values Scale (Familism Items)
- Caregiver
    - Brought back: Vancouver Index of Acculturation

- Youth
  - Neighborhood Safety and Crime (Echeverria, Diez-Roux, & Link, 2004; Mujahid et al., 2007)
    - My neighborhood is safe from crime.
  - Phen XSchool Risk and Protective Factors (PhenX Social School Environment; Harter, 2006; Arthur et al., 2007)
    - I get along with my teachers.
    - Usually, school bores me

- Caregiver
  - Neighborhood Safety and Crime

1 year follow-up

- Youth
  - Added: Wills Problem Solving Scale (Wills et al., 1986)
    - When I have a problem at school or at home…. I get as much information as I can.
    - … I think of different ways to take care of it.
- Caregiver
  - No changes

2 year follow-up

- Youth
  - Skipped: Wills Problem Solving Scale
  - Added: School Attendance and Grades
- Caregiver
  - Added: School Attendance and Grades
  - Added: PhenX Community Cohesion (PHDCN; NACJD; Raudenbush 2003)
    - This is a close-knit neighborhood.
    - People around here are willing to help their neighbors.

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- Youth
  - Strengths and Difficulties Questionnaire Prosocial Behaviors Subscale (Goodman et al., 1998; Goodman & Scott, 1999)
    - I try to be nice to other people. I care about their feelings.
  - Parental Monitoring (Karoly et al., 2016; Zucker et al., 2018)
    - How often do your parents/guardians know where you are?
  - Child's Report of Parental Behavior Inventory – Acceptance Subscale (Schaefer, 1965; Barber et al., 1994)
    - My caregiver is a person who… smiles at me very often; is easy to talk to
  - Family Environment Scale – Family Conflict Subscale (Moos & Moos, 1994)
    - We fight a lot in our family
    - Family members rarely become openly angry
- Caregiver
  - Strengths and Difficulties Questionnaire Prosocial Behaviors Subscale (on youth)
  - Family Environment Scale – Family Conflict

1 year follow-up

- Youth
  - No Changes
- Caregiver
  - No Changes

2 year follow-up

- Youth
  - Skipped: CRPBI – Acceptance Subscale
  - Added: Peer Behavior Profile (Prosocial Activity / School Achievement / Rule Breaking) (Hirschi 1969; Bingham, Fitzgerald, & Zucker, 1995)
    - How many of your friends are… athletes; have skipped school; have shoplifted occasionally
  - Added: Peer Network Health: Protective (Mason et al., 2004)
    - During the last 6 months, have any of your close friends ever suggested that you not use drugs or alcohol?
- Caregiver
  - Added: Additional subscales from Family Environment Scales – Cohesion, Expressiveness, Intellectual/Cultural, Active/Recreational, Organization (Moos & Moos, 1994)

- The ABCD Study® sought out to recruit sufficiently "higher risk" youth in order to maximize opportunities to capture less typical but important health-affecting behaviors (e.g., substance use); i.e., those behaviors that may have low base-rates in the general population (Loeber et al., 2018)

- Aim was to recruit 50% of youth for a "higher risk" group

- The remainder of the sample was referred to as "lower risk"

- Marijuana use by age 14 - 15 was used as criterion

- Four sets of longitudinal data sets were used to develop and validate a brief screening instrument

- The final set of items included both externalizing and internalizing factors, as well as parental nicotine use

- High risk for internalizing, externalizing, or both (parent report)
  - Externalizing behaviors
    - Disobedient at school
    - Lies or cheats
    - Destroys things
    - Steals
    - Tobacco use in the household
  - Internalizing behaviors
    - Fearful or anxious
    - Sad or depressed
    - Physical problems without a known medical cause
    - Slow at making friends
    - Finds life to be stressful

C&E Measures and Univariate Odds of being Higher vs Lower Risk: Baseline

Measures	N	Range	Skew	Total Sample M (SD)	Lower Risk M (SD)	Higher Risk M (SD)	OR [99% CI]
Youth							
Acculturation (friends)	4085	1, 5	-1.63	4.50 (0.76)	4.52 (0.73)	4.47 (0.80)	.92 [.85, .99]
Acculturation (family)	4085	1, 5	-0.84	3.81 (1.35)	3.81 (1.33)	3.80 (1.39)	.99 [.95, 1.04]
Neighborhood Safety	11854	1, 5	-1.01	4.03 (1.09)	4.10 (1.02)	3.91 (1.18)	.85 [.82, .88]
SRPF School Environment (Total)	11853	6, 24	-0.87	19.93 (2.83)	20.14 (2.64)	19.63 (3.05)	.93 [.92, .95]
SRPF School Involvement (Total)	11853	4, 16	-0.86	13.06 (2.36)	13.23 (2.23)	12.82 (2.53)	.93 [.91, .94]
SRPF School Disengagement (Total)	11853	2, 8	0.66	3.74 (1.46)	3.65 (1.39)	3.88 (1.54)	1.11 [1.08, 1.14]
CRPBI Acceptance (Mean, mother)	11844	1, 3	-1.82	2.78 (0.30)	2.80 (0.28)	2.75 (0.32)	.66 [.58, .74]
FES Conflict Subscale (Mean)	11854	0, 9	0.93	2.04 (1.95)	1.86 (1.86)	2.32 (2.04)	1.12 [1.10, 1.14]
Parental Monitoring (Mean)	11857	1, 5	-1.14	4.38 (0.51)	4.42 (0.48)	4.32 (0.55)	.69 [.64, .74]
SDQ Prosocial Behavior (Mean)	11845	0, 2	-1.08	1.67 (0.37)	1.69 (0.35)	1.65 (0.38)	.72 [.65, .79]
Parent							
VIA Heritage Culture (Mean)	7842	1, 9	-0.50	6.33 (1.86)	6.41 (1.83)	6.21 (1.90)	.94 [.92, .96]
VIA Mainstream Culture (Mean)	7842	1, 9	-0.89	6.80 (1.57)	6.91 (1.52)	6.64 (1.63)	.89 [.87, .92]
MEIM-R Exploration (Mean)	11187	1, 5	0.16	3.16 (1.03)	3.16 (1.02)	3.17 (1.04)	1.00 [.97, 1.04]
MEIM-R Commitment (Mean)	11187	1, 5	0.24	3.50 (0.91)	3.52 (0.91)	3.47 (0.92)	.94 [.90, .98]
MACVS Familism-Support (Mean)	11872	1, 5	-0.65	4.15 (0.61)	4.17 (0.59)	4.12 (0.61)	.86 [.81, .91]
MACVS Familism-Obligations (Mean)	11872	1, 5	-0.07	3.62 (0.66)	3.62 (0.66)	3.62 (0.66)	.99 [.94, 1.05]
MACVS Familism-Referent (Mean)	11872	1, 5	-0.17	3.38 (0.77)	3.38 (0.78)	3.37 (0.77)	.98 [.93, 1.02]
MACVS Independence/Self-reliance (Mean)	11872	1, 5	0.05	3.55 (0.61)	3.54 (0.61)	3.57 (0.61)	1.09 [1.03, 1.16]
MACVS Religion (Mean)	11872	1, 5	-0.40	3.34 (1.41)	3.32 (1.43)	3.37 (1.38)	1.02 [1.00, 1.05]
Acculturation (friends)	3832	1, 5	-1.11	4.03 (1.19)	4.05 (1.18)	4.00 (1.19)	.97 [.92, 1.02]
Acculturation (family)	3834	1, 5	-0.76	3.75 (1.36)	3.77 (1.35)	3.71 (1.36)	.97 [.92, 1.01]
Neighborhood Safety (Mean)	11870	1, 5	-0.88	3.88 (0.97)	3.96 (0.93)	3.77 (1.01)	.81 [.78, .84]
FES Conflict Subscale (Mean)	11874	0, 9	0.66	2.54 (1.95)	2.26 (1.83)	2.93 (2.05)	1.19 [1.16, 1.21]
SDQ Prosocial Behavior (Mean)	11854	0, 2	-1.77	1.75 (0.40)	1.81 (0.35)	1.66 (0.45)	.40 [.36, .44]

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Measures	N	Range	Skew	Total Sample M (SD)	Lower Risk M (SD)	Higher Risk M (SD)	*OR* [99% CI]
Youth							
Acculturation (friends)	3647	1, 5	-1.48	4.46 (.75)	4.48 (0.73)	4.42 (0.79)	.90 [.82, .98]
Acculturation (family)	3647	1, 5	-0.85	3.82 (1.32)	3.84 (1.31)	3.80 (1.35)	.97 [.92, 1.02]
Neighborhood Safety	11195	1, 5	-1.14	4.15 (1.00)	4.23 (.94)	4.03 (1.06)	.82 [.79, .85]
SRPF School Environment (Total)	11195	6, 24	-0.94	20.41 (2.69)	20.64 (2.53)	20.09 (2.86)	.92 [.91, .94]
SRPF School Involvement (Total)	11195	4, 16	-0.89	13.25 (2.28)	13.48 (2.16)	12.98 (2.40)	.90 [.89, .92]
SRPF School Disengagement (Total)	11194	2, 8	0.60	3.82 (1.19)	3.71 (1.33)	3.98 (1.44)	1.14 [1.11, 1.17]
CRPBI Acceptance (Mean, mother)	11189	1, 3	-1.88	2.80 (.29)	2.82 (0.26)	2.77 (0.31)	.51 [.45, .58]
FES Conflict Subscale (Mean)	11195	0, 9	1.03	1.92 (1.88)	1.76 (1.79)	2.14 (1.97)	1.11 [1.09, 1.13]
Parental Monitoring (Mean)	11857	1, 5	-1.30	4.46 (.46)	4.52 (0.42)	4.43 (0.48)	.65 [.60, .71]
SDQ Prosocial Behavior (Mean)	11187	0, 2	-1.22	1.71 (.34)	1.74 (0.32)	1.67 (0.36)	.55 [.49, .61]
Parent							
MACVS Familism-Support (Mean)	11208	1, 5	-1.00	4.05 (0.67)	4.07 (0.66)	4.02 (0.67)	.88 [.84, .94]
MACVS Familism-Obligations (Mean)	11208	1, 5	-0.26	3.50 (0.70)	3.50 (0.70)	3.50 (0.69)	1.00 [.95, 1.06]
MACVS Familism-Referent (Mean)	11208	1, 5	-0.22	3.26 (.080)	3.26 (0.79)	3.26 (0.79)	.99 [.94, 1.04]
MACVS Independence/Self-reliance (Mean)	11208	1, 5	-0.25	3.48 (0.65)	3.47 (0.65)	3.49 (0.64)	1.06 [1.00, 1.12]
MACVS Religion (Mean)	11208	1, 5	-0.30	3.24 (1.44)	3.23 (1.45)	3.26 (1.40)	1.01 [.98, 1.04]
Acculturation (friends)	3568	1, 5	-1.15	4.05 (1.17)	4.06 (1.17)	4.03 (1.16)	.98 [.92, 1.03]
Acculturation (family)	3530	1, 5	-0.79	3.77 (1.37)	3.77 (1.36)	3.77 (1.37)	1.00 [.95, 1.05]
Neighborhood Safety (Mean)	11208	1, 5	-0.86	3.89 (0.95)	3.96 (0.91)	3.77 (.99)	.81 [.78, .84]
FES Conflict Subscale (Mean)	11193	0, 9	0.65	2.43 (1.89)	2.20 (1.79)	2.76 (1.97)	1.17 [1.14, 1.19]
SDQ Prosocial Behavior (Mean)	11206	0, 2	-1.59	1.72 (0.42)	1.78 (0.37)	1.63 (0.46)	.42 [.38, .46]

C&E Measures and Univariate Odds of being Higher vs Lower Risk: 2 year

Measures	N	Range	Skew	Total Sample M (SD)	Lower Risk M (SD)	Higher Risk M (SD)	*OR* [99% CI]
Youth							
Acculturation (friends)	2350	1, 5	-1. 73	4.53 (.73)	4.57 (0.67)	4.49 (0.80)	.86 [.77, .96]
Acculturation (family)	2350	1, 5	-0.97	3.94 (1.27)	3.97 (1.23)	3.90 (1.33)	.95 [.89, 1.02]
Neighborhood Safety	6533	1, 5	-1.04	4.10 (.99)	4.16 (0.94)	4.01 (1.06)	.85 [.81, .89]
SRPF School Environment (Total)	6531	6, 24	-0.64	19.60 (2.82)	19.79 (2.71)	19.31 (2.94)	.94 [.92, .95]
SRPF School Involvement (Total)	6531	4, 16	-0.59	12.69 (2.34)	12.87 (2.23)	12.43 (2.46)	.92 [.90, .94]
SRPF School Disengagement (Total)	6531	2, 8	0.53	3.95 (1.34)	3.84 (1.28)	4.10 (1.41)	1.15 [1.11, 1.19]
FES Conflict Subscale (Mean)	6531	0, 9	1.06	1.87 (1.83)	1.72 (1.75)	2.11 (1.93)	1.12 [1.09, 1.15]
Parental Monitoring (Mean)	6533	1, 5	-1.30	4.49 (.46)	4.53 (0.42)	4.43 (0.51)	.62 [.55, .69]
SDQ Prosocial Behavior (Mean)	6533	0, 2	-1.23	1.71 (.36)	1.73 (0.34)	1.69 (0.38)	.70 [.61, .80]
Parent							
VIA Heritage Culture (Mean)	4332	1, 9	-0.36	6.16 (1.92)	6.24 (1.93)	6.03 (1.91)	.94 [.91 .97]
VIA Mainstream Culture (Mean)	4332	1, 9	-0.78	6.71 (1.64)	6.79 (1.60)	6.59 (1.68)	.92 [.89. 96]
MEIM-R Exploration (Mean)	6484	1, 5	-0.09	3.07 (1.01)	3.06 (1.02)	3.08 (1.01)	1.01 [.96 1.06]
MEIM-R Commitment (Mean)	6484	1, 5	-0.16	3.42 (0.90)	3.43 (0.90)	3.40 (0.91)	.96 [.91 1.01]
MACVS Familism-Support (Mean)	6551	1, 5	-0.81	4.05 (0.65)	4.09 (0.63)	3.99 (0.66)	.79 [.73 .86]
MACVS Familism-Obligations (Mean)	6551	1, 5	-0.20	3.56 (0.67)	3.58 (0.70)	3.54 (0.67)	.91 [.85 .98]
MACVS Familism-Referent (Mean)	6551	1, 5	-0.21	3.31 (0.77)	3.32 (0.79)	3.29 (0.78)	.95 [.89 1.01]
MACVS Independence/Self-reliance (Mean)	6551	1, 5	-0.15	3.52 (0.62)	3.51 (0.63)	3.53 (0.61)	1.05 [.97 1.14]
MACVS Religion (Mean)	6551	1, 5	-0.26	3.20 (1.42)	3.19 (1.44)	3.22 (1.39)	1.01 [.97 1.04]
Acculturation (friends)	2150	1, 5	-1.21	4.13 (1.10)	4.14 (1.10)	4.11 (1.09)	.98 [.90 1.06]
Acculturation (family)	2131	1, 5	-0.90	3.85 (1.31)	3.80 (1.33)	3.92 (1.29)	1.07 [1.00 1.14]
Neighborhood Safety (Mean)	6552	1, 5	-0.82	3.89 (0.90)	3.94 (0.87)	3.81 (.94)	.85 [.80 .90]
FES Conflict Subscale (Mean)	6549	0, 9	0.69	2.44 (1.97)	2.22 (1.88)	2.76 (2.05)	1.14 [1.12 1.17]
SDQ Prosocial Behavior (Mean)	6553	0, 2	-1.55	1.72 (0.41)	1.79 (0.36)	1.63 (0.45)	.39 [.34 .44]

- Age
- Biological sex
- Race or ethnicity
- Parental Education
- Household income

Unadjusted and Adjusted Multivariable Prediction of Risk Classification: Baseline

Measures	R-Square Univariate Model	R-Square Covariate Model	R-Square Covariate Only Model	R-Square Multivariate Model
Youth			.023	.041^*
Acculturation (friends)	.001	.023		
Acculturation (family)	.000	.024		
Neighborhood Safety	.010	.030		
SRPF School Environment (Total)	.010	.034		
SRPF School Involvement (Total)	.009	.030		
SRPF School Disengagement (Total)	.008	.030		
CRPBI Acceptance (Mean, mother)	.005	.029		
FES Conflict Subscale (Mean)	.018	.038		
Parental Monitoring (Mean)	.011	.032		
SDQ Prosocial Behavior (Mean)	.005	.028		
Parent			.026	.092^*
VIA Heritage Culture (Mean)	.004	.029		
VIA Mainstream Culture (Mean)	.009	.031		
MEIM-R Exploration (Mean)	.000	.024		
MEIM-R Commitment (Mean)	.001	.024		
MACVS Familism-Support (Mean)	.003	.030		
MACVS Familism-Obligations (Mean)	.000	.025		
MACVS Familism-Referent (Mean)	.000	.027		
MACVS Independence/Self-reliance (Mean)	.001	.025		
MACVS Religion (Mean)	.000	.025		
Acculturation (friends)	.000	.026		
Acculturation (family)	.001	.027		
Neighborhood Safety (Mean)	.013	.031		
FES Conflict Subscale (Mean)	.037	.059		
SDQ Prosocial Behavior (Mean)	.043	.063		

ABCD-ReproNim

Measures	*R-Square* Univariate Model	*R-Square* Covariate Model	*R-Square* Covariate Only Model	*R-Square* Multivariate Model
Youth			.026	.044^*
Acculturation (friends)	.002	.026		
Acculturation (family)	.000	.026		
Neighborhood Safety	.012	.030		
SRPF School Environment (Total)	.014	.034		
SRPF School Involvement (Total)	.016	.036		
SRPF School Disengagement (Total)	.011	.032		
CRPBI Acceptance (Mean, mother)	.012	.032		
FES Conflict Subscale (Mean)	.013	.032		
Parental Monitoring (Mean)	.012	.030		
SDQ Prosocial Behavior (Mean)	.013	.033		
Parent			.018	.075^*
MACVS Familism-Support (Mean)	.002	.027		
MACVS Familism-Obligations (Mean)	.000	.023		
MACVS Familism-Referent (Mean)	.000	.024		
MACVS Independence/Self-reliance (Mean)	.001	.023		
MACVS Religion (Mean)	.000	.023		
Acculturation (friends)	.000	.017		
Acculturation (family)	.000	.017		
Neighborhood Safety (Mean)	.012	.030		
FES Conflict Subscale (Mean)	.028	.051		
SDQ Prosocial Behavior (Mean)	.041	.060		

Unadjusted and Adjusted Multivariable Prediction of Risk Classification: 2 year

Measures	*R-Square* Univariate Model	*R-Square* Covariate Model	*R-Square* Covariate Only Model	*R-Square* Multivariate Model
Youth			.029	.044^*
Acculturation (friends)	.004	.028		
Acculturation (family)	.001	.026		
Neighborhood Safety	.008	.027		
SRPF School Environment (Total)	.010	.032		
SRPF School Involvement (Total)	.011	.032		
SRPF School Disengagement (Total)	.012	.032		
FES Conflict Subscale (Mean)	.011	.034		
Parental Monitoring (Mean)	.012	.033		
SDQ Prosocial Behavior (Mean)	.004	.026		
Parent			.019	.087^*
VIA Heritage Culture (Mean)	.004	.025		
VIA Mainstream Culture (Mean)	.005	.024		
MEIM-R Exploration (Mean)	.000	.022		
MEIM-R Commitment (Mean)	.000	.022		
MACVS Familism-Support (Mean)	.007	.033		
MACVS Familism-Obligations (Mean)	.001	.026		
MACVS Familism-Referent (Mean)	.001	.026		
MACVS Independence/Self-reliance (Mean)	.000	.023		
MACVS Religion (Mean)	.000	.023		
Acculturation (friends)	.000	.020		
Acculturation (family)	.003	.024		
Neighborhood Safety (Mean)	.007	.026		
FES Conflict Subscale (Mean)	.024	.047		
SDQ Prosocial Behavior (Mean)	.047	.065		

- 3-year follow-up
    - Youth
        - Vancouver Index of Acculturation
        - Multigroup Ethnic Identity Measure – Revised
        - Mexican American Cultural Values Scale – Religion and Independence/Self-reliance Subscales
        - Pet Ownership
        - Neglectful Behaviors Scale
    - Caregiver
        - No new additions
- 4-year follow-up
    - Youth
        - Resistance to Peer Influence
    - Caregiver
        - Parental Monitoring and Solicitation

- Romantic relationships
- Clique structures
- Unpredictability of family environment
- Impaired driving
- Ecological activity space data
- More cultural / ethnic identity items (youth)
- Home responsibilities
- Connection with adults outside home (role models)
- Participation in enrichment programs
- Spirituality in family

- The ABCD Study® Cultural and Environment workgroup has curated several brief and valid measures of youths' family, peer, proximal, and cultural environment.

- These measures are chosen to inform important developmental changes that occur during adolescence, as well as additional factors that may moderate or mediate associations with other elements of ABCD.

- Measures that have been shown important for substance youth trajectories and those that have been used in other large-scale studies were also prioritized.

- Preliminary analyses of C&E measures show that many account for unique variance in the initial "risk" classifications of ABCD participants and will likely prove useful for better understanding the many factors that contribute to substance use trajectories, mental health, brain development, and functional outcomes in adolescence and into early adulthood.

Thank you to the very large ABCD family!

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