

## Supplemental Online Content

Miller AP, Baranger DAA, Paul SE, et al. Characteristics associated with cannabis use initiation by late childhood and early adolescence in the Adolescent Brain Cognitive Development (ABCD) study. *JAMA Pediatr*. Published online June 26, 2023. doi:10.1001/jamapediatrics.2023.1801

### **eMethods**

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

## eMethods. Supplemental Methods

Predictor variables were chosen to reflect first assessment available for each measure to examine earliest measured correlates of cannabis initiation in late childhood/early adolescence. Analytic sample sizes (included below) reflect differential missing data across baseline covariates and predictor variables by follow-up assessments.

Predictor variables included variables assessed at (1) baseline: raw subscale syndrome scores from the Child Behavior Checklist (CBCL; rule-breaking and aggressive behavior, attention, social, and thought problems, and withdrawn/depression, somatic complaints, and anxiety/depressed problems) as well as raw total scores for externalizing and internalizing scales, and total problems [1-11;  $n = 9,849$ ]; past or current endorsement of anhedonia or depressed mood from the Kiddie Schedule for Affective Disorders and Schizophrenia (KSADS-5) [12-13;  $n = 9,792$ ]; UPPS-P Impulsive Behavior subscale scores (sensation seeking, negative urgency, positive urgency, lack of planning, and lack of perseverance) [14-18;  $n = 9,837$ ]; BIS/BAS subscale scores (behavioral inhibition, drive, fun seeking, and reward responsiveness) [19-22;  $n = 9,837$ ]; NIH Toolbox composite fully-corrected T-scores for fluid, crystallized, and overall cognitive ability [23-25;  $n = 9,052-9,094$ ]; parental prohibition of cannabis use (0 = no established rules regarding cannabis use; 1 = not allowed) [26;  $n = 9,773$ ]; parent or biological relative with drug or alcohol problem [27-28;  $n = 9,332-9,625$ ]; retrospective report of maternal cannabis use during pregnancy before or after maternal knowledge of pregnancy (0 = no use; 1 = use before or after knowledge of pregnancy) [29;  $n = 9,572$ ]; and legalization of recreational cannabis by 2020 in child state of residence (0 = not legal; 1 = legal; legalization of *medical* cannabis by 2020 was not considered here as only two data collection sites were located in states where medical cannabis had not been legalized)[30;  $n=9,850$ ]; (2) 1-year follow-up: rating of ease of obtaining cannabis [31;  $n = 6,923$ ]; Marijuana Effect Expectancy Questionnaire-Brief (MEEQ-B) raw subscale scores for positive and negative expectancies related to cannabis use [32-33;  $n = 7,995$ ]; number of friends currently using cannabis [34;  $n = 7,954$ ]; perceived peer tolerance of using cannabis once or twice, occasionally, and regularly [35-37;  $n = 7,469-7,559$ ]; intentions to use cannabis (curious about using, intention to use soon, and likelihood of using if offered by best friend) [38-40;  $n = 7,690-7,800$ ]; and perceived level of risk of harm for using cannabis once or twice, occasionally, or regularly [41-43;  $n = 7,411-7,515$ ]; (3) 3-year follow-up: retrospective report of maternal cannabis use while breastfeeding child [44;  $n = 4,164$ ]; and (4) initiation of alcohol or tobacco use by 3.5-year follow-up [45-46;  $n = 9,851$ ]. Predictor variables were scaled to  $M=0$ ,  $SD=1$  prior to analyses.

Fixed-effect covariates were selected with the goal of controlling for significant differences among groups (i.e., cannabis use, no cannabis use) on the basis of sociodemographic indicators and related disparities (e.g., race/ethnicity) as well as confounding variables reflecting effects of shared genetics and/or environment (i.e., family membership, twin status).

A follow-up analysis ( $n=8,791$ ) additionally examined the association between prenatal cannabis exposure and cannabis initiation controlling for the covariates listed in the Figure caption as well as additional covariates including parent or biological relative with drug or alcohol problem [27-28], child initiation of alcohol or tobacco use by 3.5-year follow-up [44-45], and retrospective report of maternal alcohol and tobacco use during pregnancy before or after maternal knowledge of pregnancy (0 = no use; 1 = use before or after knowledge of pregnancy).

In addition to controlling for non-independence within families using family membership (0 = not related to any other child in sample, 1 = shared family membership) and twin status (0 = not a member of twin pair, 1 = member of twin pair), models using only unrelated participants were specified to further assess any impact of family on current findings. The cannabis use group ( $n=170$ ) was comprised on 167 families, while the no cannabis use group ( $n=10,711$ ) was comprised of 9,038 families. The pattern of results presented did not change following the randomly selected inclusion of only one member of each family in the comparison group nor the exclusion of participants who had initiated cannabis use at baseline ( $n = 8$ ).