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Self-Reported Cannabis Use is Inconsistent with the Results From Drug-Screening in Youth at Ultra High-Risk for Psychosis in Colorado

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TO THE EDITOR

Given recent high profile attention to cannabis use during the prodromal psychosis period (Auther *et al.* 2012), it is increasingly important to insure that the field is incorporating appropriate assessment methodologies. As researchers have expressed concerns with the validity of self reported health-risk behaviors (including drug use) in adolescents and young adults (Addington *et al.* 2013), and a large majority of published cannabis studies in the prodrome rely solely on self-report, we were concerned. In a study of ultra high-risk (UHR) youth examining differences between rates of self-reported cannabis use and results from a drug screen, we predicted that these youth would under-report use when compared with the outcome from the urine panel.

A total of 33 ultrahigh-risk (UHR) (12 female/21 male) adolescents (mean=18.76; SD=1.278) were recruited; inclusion criteria included the presence of a prodromal syndrome and exclusion criteria included an Axis I psychotic disorder diagnosis. Cannabis usage was measured utilizing the Alcohol/Drug Use Scale (AUS/DUS) (Drake *et al.* 1996). This scale is among the most widely used in UHR programs (Woods *et al.* 2009) and found to be highly reliable in psychosis populations (ICCs≥.93) (Brunette *et. al.* 2006). The scale has good convergent (Wüsthoff *et al.* 2011) as well as face validity, directly asking “Please rate your use of cannabis in the past 1 month according to the following scale: 0=”no use” to 5=”almost daily.” A urine sample was screened for the presence of tetrahydrocannabinol (THC cutoff 50 ng/mL) utilizing Instant Technologies iCup (Norfolk, VA). The rapid drug screen has detection times up to one month and is commonly used in drug research (McRae-Clark *et al.* 2013). A study examining concordance between self-report and on-site urine screening for cannabis (using the same 50 ng/ml cutoff as the present investigation) in adolescents meeting criteria for abuse/dependence observed good consistency between urine panel results and self reported use in the last seven days (up to 94%) but noted that for reported use past one week, agreement dropped considerably (Buchan *et al.* 2002).

Twenty participants reported cannabis use (60.1%): 6 (18.2%) indicated occasional use (1–4x per month) and 14 (42.4%) reported heavy-use (1–2x per week-daily). However, the

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urine panel identified 12 (36.4%) as positive (urine was unavailable for 1 participant). There were 13 inconsistent cases and of these, three participants (9.4%) did not report drug use but the urine screen detected THC. Surprisingly, 10 participants (31.3%) reported usage in the past month but the urine screen was negative. Notably, 4 of these participants (12.5%) reported heavy use.

From the most conservative perspective, 4 self-reported heavy-users did not show positive urine screens and 3 denied using but showed positive panels (a total of 21.9% disagreement). We were surprised that the findings suggest that UHR youth may be exaggerating marijuana usage. Though the urine screen may have not detected cases reporting light use (urine testing is not perfect due to variability in participant metabolism), a number of youth reporting heavy-usage screened negative. This pattern has been observed with one participant in another UHR study, though it is unclear if removing the inconsistent case affected the findings (Mizrahi *et al.* 2013). While replication is necessary, it is possible that these youth may be exaggerating usage to explain/excuse the presence of symptoms or this may reflect a belief that cannabis use is socially desirable. It is also possible that the participant's knowledge of the urine screen encouraged reporting/over reporting. However, it is necessary to note that the current investigation did not use secondary urine screening (in which there is assay replication of the drug screen to avoid laboratory error). Future research employing this important procedure in combination with multiple screening measures (e.g., interview, self report, hair) is required to definitely rule out the role potential confounds may have played in influencing the present findings. Due to the recent cannabis legalization, the study location could have also influenced reporting and possibly limit generalizability. Despite these limitations the results remain noteworthy.

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