

## Examining Associations Between Alcohol and Cannabis Simultaneous and Concurrent Co-Use and Alcohol and Cannabis Outcomes

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Alcohol and cannabis co-use is common (Wadell, 2023). Research has shown that frequency of both alcohol and cannabis use (Wadell, 2023) and order of alcohol and cannabis use matter (Karoly et al., 2023, Gunn et al., 2022). Most research has used frequency counts or counted days in which both substances were used, however, fewer studies looked at differences between co-use days and non-co-use days while also comparing simultaneous use, defined as overlapping intoxicating effects of both substances, versus concurrent use, defined as use of alcohol and cannabis on the same day but without overlapping intoxicating effects. Study hypotheses for the present study were that negative outcomes would be significantly higher for those who reported co-use of alcohol and cannabis versus those who reported no co-use and that positive associations between simultaneous use and negative outcomes would be significantly higher in magnitude compared to associations between negative outcomes and concurrent use. Data were from a cross-sectional study examining alcohol and cannabis co-use using the Prolific data collection system (n=410, 44.6% women, 70.8% White, 6.6% Black, 5.9% Asian, 5.1% multiracial). Results indicated that 46.1% of the sample reported only using alcohol, while 46.3% reported co-using alcohol and cannabis, and only 7.6% reporting using cannabis only. Those who reported co-use of alcohol and cannabis reported significantly higher negative consequence severity (M=3.4, SD=1.8) compared to those reported no co-use (M=2.9, SD=1.1),  $t=4.21$ ,  $df=350$ ,  $p<0.001$ . Results indicated non-significant differences in negative consequence severity for negative cannabis consequences across co-use categories. Results also indicated that participants who reported co-use had significantly higher AUDIT scores (M = 28.5, SD = 5.4) compared to those who reported no co-use (M = 25.9, SD = 7.3),  $t = 3.92$ ,  $df = 377$ ,  $p < 0.001$ . Among those who reported co-use, simultaneous use days significantly positively correlated with CUDIT ( $r=0.31$ ,  $p<0.001$ ) and AUDIT ( $r=0.45$ ,  $p<0.001$ ) scores and alcohol negative consequence severity ( $r=0.19$ ,  $p<0.01$ ). Concurrent use days did not significantly correlate with any of the outcomes. Results indicated non-significant differences in CUDIT scores between those reporting co-use versus those reporting no co-use. Results suggest that co-use is associated with worse = alcohol use consequences than cannabis use consequences and that simultaneous use is associated with more negative outcomes compared to concurrent use.

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