

Supplemental Table A: Measures

EMA Measures				
Construct Assessed	Measure	Citation	Item and Response Examples	Psychometrics and Notes
Prescription Stimulant Misuse (PSM)	Item derived from the National Survey on Drug Use and Health (NSDUH) and the National Epidemiologic Survey on Alcohol and Related Conditions-III (NESARC-III)	CBHSQ, 2018; Grant et al., 2014	Item: “Have you misused a stimulant since the last survey? That is, have you used your own stimulant medication in a way your doctor did not intend or have you used another person’s stimulant medication?” Response: Yes/No	Single-item, N/A
PSM Motives	Derived from the NSDUH and past research	CBHSQ, 2018; McCabe and Cranford, 2012; Weyandt et al., 2009;	Item: Why did you use the stimulant medication? Please select all that apply Responses: to lose weight; to concentrate better; to stay awake; to study better; to experiment; to feel better or get high; to change the effects of another drug; because I am ‘hooked’	Single-item, N/A
PSM Sources	Item derived from the NSDUH and Monitoring the Future surveys	CBHSQ, 2018; McCabe et al., 2019	Item: “Where do you get stimulant medication for misuse from? Please select any source you have ever used.” Responses: It is my own medication; from a friend/roommate for free; from family for free; take it from a	Single-item, N/A

			friend/roommate without asking; take it from family without asking; buy it from a friend; buy it from family; buy it from a stranger or dealer; some other way	
Affect	The International PANAS, Short Form (I-PANAS-SF)	Thompson, 2007	<p>Positive Affect Items: alert, inspired, determined, attentive, active</p> <p>Negative Affect Items: upset, hostile, ashamed, nervous, afraid</p> <p>Responses were on a 5-point Likert scale from 1 (“not at all”) to 5 (“always”)</p>	the I-PANAS-SF had good psychometrics on both affective subscales, with internal consistency values of 0.75 or greater in different samples, a consistent two-factor solution in confirmatory factor analysis, eight-week test-retest of 0.84 and evidence of both convergent and divergent validity with a measure of subjective well-being
Perceived Stress	The 4-item Perceived Stress Scale (PSS-4)	Cohen, Kamarck, & Mermelstein, 1983; Lee, 2012	<p>Item example: “Since the last survey, how often have you felt that you were unable to control the important things in your life?”</p> <p>Responses were on a 5-point Likert scale: 0 (“never”), 1 (“almost never”), 2 (“sometimes”), 3 (“fairly often”), and 4 (“very often”)</p>	It had good predictive validity for tobacco smoking, adequate internal consistency, and reliable factor solutions in past research and was modified to focus on perceived stress since the last EMA session to meet the aims of this project. The PSS-4 had less robust psychometrics than the 10- or 14-item scales, but given the imperative for a brief scale for use in EMA formats, it was selected.

Emotional Control	100 centimeter visual analogue scale (VAS)	N/A	Item: "How in control of your emotions do you feel <u>right now</u> ?" Responses had anchor points of 0 ("no control over my emotions") and 100 ("total control over my emotions")	No significant differences were found between VAS and Likert scale ratings across a variety of measures (Cook, Heath, Thompson, & Thompson, 2001; Couper, Tourangeau, Conrad, & Singer, 2006)
Academic Stress	100 centimeter VAS	N/A	Item: "How much stress about your college responsibilities do you feel <u>right now</u> ?" Responses had anchor points of 0 ("no academic stress") and 100 ("strongest imaginable academic stress")	See above
Academic Demands	100 centimeter VAS	N/A	Item: "How demanding (or how much work) are your college responsibilities <u>right now</u> ?" Responses had anchor points of 0 ("no academic stress") and 100 ("strongest imaginable academic stress")	See above
Academic Confidence	100 centimeter VAS	N/A	Item: "How confident are you that you can successfully take care of all your college responsibilities or work <u>right now</u> ?" Responses had anchor points of 0 ("I have no confidence I can succeed in school") and 100 ("I	See above

			have total confidence I can succeed in school”)	
Baseline Measures				
Construct Assessed	Measure	Citation	Item and Response Examples	Psychometrics and Notes
Attention Deficit Hyperactivity Disorder (ADHD) Symptoms	Adult ADHD Self-Report Scale (ASRS) screener	Kessler et al., 2005; van de Glind et al., 2013	Item example: “How often do you have problems remembering appointments or obligations?” Responses were on a 5-point Likert scale: 1 (“never”), 2 (“rarely”), 3 (“sometimes”), 4 (“often”), and 5 (“very often”)	The screener had better reliability and validity than the full version, and the developers recommended its use over the full version. The ASRS screener also had good specificity (0.66) and excellent sensitivity (0.84) in treatment-seeking adults with SUD.
Impulsivity	Short UPPS-P Impulsive Behavior scale (SUPPS-P)	Cyders et al., 2014	Item example: “I generally like to see things through to the end.” Responses were on a 4-point Likert scale: 1 (“agree strongly”), 2 (“agree some”), 3 (“disagree some”), 4 (“disagree strongly”)	The SUPPS-P had very strong reliability and validity, with internal consistency values at or above 0.74 for the subscales, replication of the five-factor model of the full UPPS-P measure, and consistent relationships to a variety of impulsive and risky behaviors.
Delay Discounting	27-item Monetary Choice Questionnaire	Kirby, Bickel, & Petry, 1999; Kaplan et al., 2016	Item example: “Would you prefer \$54 today, or \$55 in 117 days?” Response example: “\$54 today” or “\$55 in 117 days”	The Monetary Choice Questionnaire has strong reliability and validity, as it consistently links greater discounting of delayed rewards to substance use. The outcome is <i>k</i> , or the indifference point between the

				delayed reward and the immediate reward.
PSM History	Four questions from the Stimulant Survey Questionnaire (SSQ)	Weyandt et al., 2009	<p>Items: “I have used prescription stimulants with alcohol”; “I have snorted prescription stimulants”; “I have injected prescription stimulants”; “I have smoked prescription stimulants”</p> <p>Responses were on a 5-point Likert scale from 1 (“never”) to 5 (“always”) and were dichotomized into never (1) versus at least once (2-5)</p>	Single-items, N/A
PSM Motives	Item derived from the NSDUH and the NESARC-III	CBHSQ, 2018; Grant et al., 2014	<p>Item: “Have you misused a stimulant since the last survey? That is, have you used your own stimulant medication in a way your doctor did not intend or have you used another person’s stimulant medication?”</p> <p>Response: Yes/No</p>	<p>Single-item, N/A</p> <p>Items were categorized as <u>self-treatment motives only</u> or <u>recreational motives</u>. Self-treatment captured “to lose weight”, “to concentrate better”, “to stay awake”, and “to study better”; these motives are often classified together as they are consistent with FDA indicated uses for stimulant medication.</p>
PSM Sources	Item derived from the NSDUH and Monitoring the Future surveys	CBHSQ, 2018; McCabe et al., 2019	Item: “Where do you get stimulant medication for misuse from? Please select any source you have ever used.”	<p>Single-item, N/A</p> <p>Sources were dichotomized into <u>multiple sources</u> versus <u>single source PSM</u>.</p>

			Responses: It is my own medication; from a friend/roommate for free; from family for free; take it from a friend/roommate without asking; take it from family without asking; buy it from a friend; buy it from family; buy it from a stranger or dealer; some other way	
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