

Supplementary materials

Supplementary Materials: CBT-Informed mHealth Text Messaging Intervention Protocol and Message Content

This structured CBT-based intervention plan is designed to support individuals in moving from pre-contemplation to contemplation by fostering self-awareness, challenging unhelpful thought patterns, and building essential coping skills. The program begins by increasing self-awareness about substance use, encouraging individuals to reflect on their habits, triggers, and motivations. Through self-monitoring exercises and goal-setting strategies, participants develop a deeper understanding of their behaviors and the factors influencing their choices.

As individuals progress, the plan helps challenge cognitive distortions that may prevent change. By introducing cognitive restructuring techniques, positive self-talk, and reframing negative beliefs about substance use, participants learn to shift their perspectives and develop a more empowering mindset. Assertiveness training and peer pressure resistance strategies further equip them with the skills needed to navigate social situations confidently.

The intervention also strengthens coping strategies, incorporating stress management techniques, problem-solving skills, and resilience-building approaches. These tools enable individuals to handle challenges more effectively and maintain long-term progress. By focusing on behavioral activation, the plan encourages individuals to explore alternative activities that promote well-being, reinforcing positive change through structured routines and supportive relationships.

Ultimately, this program provides a comprehensive and structured framework for individuals considering change, offering them the tools, motivation, and support necessary to transition toward healthier behaviors and sustain long-term success.

Introduction: Hello Participants, this is Mistire from Jimma University. We are conducting a study on "mHealth-Based Interventions for Substance Use Among Undergraduates," and your input is incredibly valuable to our research!

Body (Key Message): The study includes a brief survey three months after the text messaging phase, which takes about 10 minutes to complete. Your participation will help us better understand substance use. You will receive text messages at 9:00 in the afternoon. In the first month, you will receive three messages per week on Tuesday, Wednesday, and Thursday. In the second month, you will receive two messages per week on Tuesday and Thursday. In the final month, you will receive one message per week on Thursday. If you'd like, you can text us every Saturday to share how you're feeling. For each message we send, we expect a reply with the keyword "YES" to confirm receipt. If we do not receive a response, we will resend the message after 30 minutes. If there is still no response, we will follow up with a phone call after one hour.

Statement Calling to Action: If you have any questions, feel free to reply or contact us at 091237034. Thank you!

Phase & Focus	Message Category	Text Message	CBT Principle	Day	Time
Phase 1 (first Week) – Challenging Thought Patterns	Cognitive Restructuring	<i>"Do you ever tell yourself ‘I can’t change’? Try shifting that thought to ‘I’m open to change and exploring new possibilities.’"</i>	Challenging negative thoughts and fostering a growth mindset	Tuesday	3:00 PM
	Positive Self-Talk	<i>"Your thoughts influence your actions. What if you believed, ‘I have the power to change’? How might that affect your choices?"</i>	Building self-efficacy through positive self-talk	Wednesday	3:00 PM
	Assertiveness Skills	<i>"Imagine a situation where someone offers you substances. How would you respond? Practicing a confident ‘no’ can help you feel more prepared."</i>	Developing assertiveness and refusal skills	Thursday	3:00 PM
Phase 1 (second Week) – Building Awareness, Motivation, and Self-Reflection on Substance Use Behaviors	Goal Setting and Motivation	<i>"Today, take a moment to set a small goal. What’s one thing you can do to explore a healthier lifestyle? Change starts with one step."</i>	Encouraging self-efficacy and goal-setting	Tuesday	3:00 PM
	Intrinsic Motivation	<i>"Have you ever thought about why you use substances? Reflecting on your reasons can help you decide if change is right for you."</i>	Encouraging self-exploration and intrinsic motivation	Wednesday	3:00 PM
	Self-Monitoring	<i>"Pay attention to when and why you use substances. What situations or emotions lead to it? Noticing patterns can be the first step to change."</i>	Increasing awareness of triggers and patterns	Thursday	3:00 PM
Phase 1 (Third Week) – Recognizing the Impact of Substance Use	Reinforcing Positive Outcomes	<i>"Have you noticed how your body and mind feel after a break from substances? Try writing down any positive changes—big or small!"</i>	Reinforcing self-awareness and motivation through reflection	Tuesday	3:00 PM
	Stress Management	<i>"Next time you feel stressed, pause for a moment and take three deep breaths. Could there be another way to handle stress besides substances?"</i>	Introducing stress-reduction techniques	Wednesday	3:00 PM
	Focusing on Long-Term Consequences	<i>"In moments of stress, ask yourself: Will this choice help or hurt my future goals? Small decisions now shape where you’ll be later."</i>	Encouraging cognitive reframing to manage urges	Thursday	3:00 PM
Phase 1 (Fourth Week) – Social	Reframing Negative Beliefs	<i>"Saying no to substances isn’t about missing out—it’s about making choices that support your well-being. You’re in control."</i>	Changing perceptions around social expectations	Tuesday	3:00 PM

Influence and Peer Pressure					
	Peer Pressure Resistance	<i>"If someone pressures you, try this: 'Not tonight, I have something important tomorrow.' Changing the topic can help shift the focus."</i>	Teaching social coping strategies and refusal skills	Wednesday	3:00 PM
	Encouraging Positive Social Connections	<i>"Who in your life supports your goals and makes you feel good about yourself? Surrounding yourself with positive people can make change easier."</i>	Strengthening support networks	Thursday	3:00 PM
Phase 2 (Fifth to Eighth Week) – Strengthening Alternative Behaviors	Developing Healthy Habits	<i>"When tempted, try a new habit—listen to music, take a walk, or call a friend. Small shifts create new routines."</i>	Behavioral substitution to replace substance use	Tuesday	3:00 PM
	Establishing Structured Routines	<i>"A steady routine can make healthy choices easier. What's one habit you can build into your daily schedule to support your well-being?"</i>	Encouraging structured behavior changes	Thursday	3:00 PM
	Problem-Solving Skills	<i>"When facing a challenge, break it down: What's the issue? What are your options? What's one step you can take today?"</i>	Teaching problem-solving techniques	Tuesday	3:00 PM
	Anticipating and Planning for Obstacles	<i>"What's one situation this week that might challenge you? Thinking ahead can help you feel more prepared."</i>	Encouraging proactive coping strategies	Thursday	3:00 PM
	Building Healthy Relationships	<i>"Who in your life makes you feel supported and valued? Spend time with those who encourage your goals."</i>	Strengthening social reinforcement	Tuesday	3:00 PM
	Behavioral Activation for Social Engagement	<i>"Plan fun activities that don't involve substances—game nights, sports, or creative hobbies. What's something you'd like to try?"</i>	Encouraging positive behavioral alternatives	Thursday	3:00 PM
	Recognizing and Managing Triggers	<i>"What situations make you feel pressured to use? Thinking ahead about who you can turn to for support can make a big difference."</i>	Enhancing self-monitoring and preparedness	Tuesday	3:00 PM

	Challenging Negative Self-Beliefs	<i>"Do you ever feel like you need substances to fit in? The truth is, confidence comes from within—not from what's in your hand."</i>	Reframing self-perceptions	Thursday	3:00 PM
Phase 3 (Ninth to Twelfth Week) – Maintaining Change and Managing Setbacks	Building Resilience	<i>"Change isn't always a straight line. If you slip, don't give up—learn from it and keep going. Every effort counts."</i>	Normalizing setbacks and fostering resilience	Thursday	3:00 PM
	Refusal and Assertiveness Skills	<i>"It's okay to say no. Practice this: 'Thanks, but I'm making different choices right now.' Confidence grows with practice!"</i>	Strengthening assertiveness and boundary-setting	Thursday	3:00 PM
	Seeking Support	<i>"Struggling in social situations? Talking to a mentor, counselor, or supportive friend can help. You don't have to do this alone."</i>	Encouraging help-seeking behavior	Thursday	3:00 PM
	Challenging Cognitive Distortions	<i>"Thinking you 'need' substances to be accepted isn't true. People respect honesty and confidence. Being yourself is enough."</i>	Reframing distorted beliefs about social belonging	Thursday	3:00 PM