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Feasibility and acceptability of a digital health intervention to promote engagement in and adherence to medication for opioid use disorder

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Abstract

Background: Buprenorphine-naloxone is an evidence-based treatment for opioid use disorder (OUD). Despite its efficacy, nearly half of patients discontinue treatment prematurely. Novel intervention strategies that may be delivered outside of traditional treatment settings are needed to support buprenorphine uptake and maintenance. The goal of this study was to elucidate key elements surrounding the acceptability/feasibility and structure of an interactive computer- and text message–delivered personalized feedback intervention for adults initiating outpatient buprenorphine treatment.

Methods: Twenty-four adults engaged in treatment at two outpatient addiction treatment centers completed semistructured interviews exploring preferences around digital health interventions.

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Trained interviewers conducted interviews, the study audio-recorded them, and a professional agency transcribed them verbatim. The research team iteratively developed a coding structure using thematic and content analysis and entered it into a framework matrix. The team double coded each transcript.

Results: The sample was balanced by gender, primary type of opioid use (prescription pills; heroin/fentanyl), and phase of recovery [early (≤8 weeks of treatment) vs. late (>8 weeks of treatment)]. The study reached saturation after 24 interviews (mean age = 38.9; 70.8% white; 8.3% Hispanic/Latino). (1) *Acceptability/feasibility themes*: A computer- and text message–based intervention that incorporates a motivational- and distress tolerance–based framework is highly acceptable. Presentation of material, including the length of the intervention, is effective in facilitating learning. The center should offer the intervention to individuals entering treatment and they should have the flexibility to complete the intervention at the center or in private from their own home. The use of technology for intervention delivery helps to overcome fears of judgment stemming from stigmatizing experiences. (2) *Structural themes*: The text message intervention should deliver both predetermined (automatic) and on demand messages. Two to three messages per day (morning and early evening), with the option to elicit additional messages as needed, would be ideal. The messages must be personalized. Incorporating multimedia such as emojis, gifs, and links to videos will increase interactivity.

Conclusions: Overall, adults engaged in outpatient buprenorphine treatment were receptive to an interactive computer- and text messaged–delivered personalized feedback intervention to support recovery. Incorporating thematic results on suggested structural changes may increase the usability of this intervention to improve treatment outcomes by reducing illicit opioid use, increasing adherence/retention, and preventing future overdose and other complications of illicit opioid use.

Keywords

Opioid use disorder; Digital health; mHealth; Buprenorphine

1. Introduction

The opioid epidemic continues to represent a major public health crisis in the United States, with the rate of drug-related overdoses rising in 2019 (O'Donnell et al., 2020). Medication for opioid use disorder (MOUD), including buprenorphine-naloxone, methadone, and naltrexone, is the current gold standard treatment for individuals diagnosed with opioid use disorder (OUD; National Academies of Sciences, Engineering, and Medicine; 2019). Of the three FDA-approved medications, buprenorphine-naloxone (buprenorphine), a long-acting partial opioid agonist, has grown in popularity over the last decade because of its safety profile and flexible administration (SAMHSA, 2019). Meta-analyses highlight the effectiveness of buprenorphine in reducing adverse outcomes, including lowering fatality rates associated with overdose (Mattick, 2014; Kakko, 2003; Fudala, 2003). Despite the efficacy of buprenorphine, a significant proportion of patients return to illicit opioid use and/or discontinue treatment prematurely (Hser et al., 2014; Stein et al., 2010). The emergence of coronavirus disease 2019 (COVID-19) has further exacerbated this issue by creating disruptions in health care, as well as preventing access to traditional psychosocial

supports (Haley & Saitz, 2020), and has heightened the need to develop innovative strategies to support this vulnerable population.

Digital health platforms, such as mobile phones and computer devices, have the capability of efficiently and effectively reaching a variety of patient populations (Head et al., 2013; Marsch et al., 2020). Recent estimates suggest that worldwide over five billion people have access to mobile phone services (Silver, 2019). Notably, these technologies are becoming increasingly widespread, including among low-income and underserved populations (Collins et al., 2016; GSMA Intelligence, 2019; Mitchell & Kan, 2019). Computer- and text message–based modalities are generally easy to use, cost-effective, ensure high fidelity, and enable the rapid diffusion and widespread adoption of evidence-based interventions (Marsch et al., 2020). These platforms also offer the advantage of being delivered in participants' natural environments. This allows for the content, timing, and frequency of messages to be individually tailored to times of high need (Muench et al., 2013). Thus, digital health interventions are uniquely positioned to augment standard medication treatments, such as buprenorphine, to increase medication adherence and treatment retention and potentially improve clinical outcomes.

This paper describes formative evaluation procedures for a behavioral treatment development study (iCOPE). iCOPE is a digital health intervention, delivered through computer and text message, designed to promote engagement in and adherence to buprenorphine treatment through motivational enhancement and distress tolerance skills training (see Langdon et al., 2020 for additional detail). The intervention content is initially presented through a single, brief, computer-delivered session that encourages participants to be mindful of their behaviors in a non-confrontational manner. This portion of the intervention has two aims: (a) enhance motivation by engaging patients in a decisional balance exercise designed to evaluate the perceived advantages/disadvantages of making a behavior change (discontinuing opioids, initiating buprenorphine) and (b) equip patients to persist with identified behavioral goals while initiating treatment by providing concrete strategies to better tolerate emotional and physical discomfort. The second intervention phase is delivered via text message during the initial eight weeks of treatment and focuses on: a) promoting motivation through daily reminders of salient factors (e.g., health, relationships) and b) emphasizing adaptive strategies to cope with challenges that may arise in the early phase of treatment. Text messages are delivered to participants' personal cell phones using an automated computerized system based on pre-specified delivery algorithms (Ranney et al., 2016, 2018).

While researchers have developed other mobile applications to treat substance use (Gonzales et al., 2014; Mason et al., 2015; Rizvi et al., 2011), including OUD (Christensen et al., 2014), iCOPE fills an important gap by focusing on the motivational aspects of opioid use, in combination with distress tolerance skills training, to overcome a primary barrier of successful buprenorphine uptake—intolerance of physical and emotional distress. The overarching goal of the current investigation was to elicit feedback from the target population (i.e., individuals with a history of OUD, currently engaged in buprenorphine treatment) to optimize acceptability and structure of the iCOPE intervention, using the techniques of thematic and content analysis.

2. Materials and methods

2.1. Recruitment

The study recruited participants from two hospital-affiliated outpatient clinics that offer MOUD (e.g., buprenorphine) and ancillary supports for patients with OUDs. Participants were eligible for the study if they were over 18 years of age, met the Diagnostic and Statistical Manual of Mental Health Disorders (Fifth Edition) criteria for OUD per treating provider, were actively engaged in buprenorphine treatment, and endorsed having access to a cell phone with text message capability. The study recruited participants through a variety of methods including: responding to fliers posted in the clinic, referral from treating providers, and research staff approaching potentially eligible patients during routine clinic visits. The study obtained demographic and clinical data following written and informed consent. The study compensated participants with a $30 gift card for their time/effort.

2.2. Interviews

The principal investigator (KJL) or a trained research assistant (CS) conducted qualitative in-depth individual interviews. They conducted the interviews in a private office to ensure participant confidentiality. The interviewers followed a semistructured interview protocol that stemmed from primary research questions and project goals. Throughout the interview process, participants answered open-ended questions about their use of computers, mobile phones, and other technologies; prior engagement in MOUD; barriers/facilitators to engaging in MOUD; factors contributing to substance use; reactions to and perceived usefulness of proposed intervention; and preferences, benefits, and likelihood of engaging in digital health interventions. Research staff presented participants with mockups of the intervention content, including an illustrative presentation of the in-clinic intervention, a sample of representative text messages, and preference testing in an A vs. B format. The study asked participants to reflect on the usefulness of the intervention content and delivery mode for patients newly initiating buprenorphine treatment. The study audio-recorded all interviews; a professional agency transcribed them; and the team checked them for accuracy prior to coding. The interviewer completed a written debrief of each interview and the team members reviewed them.

2.3. Data analysis

KJL and CS read and manually coded all interview transcripts. Analyses used both thematic (deductive) and data driven (inductive) codes. The coders drew the deductive codes from the topics in questions used to facilitate the interviews; inductive codes captured additional concepts that emerged from the participants. Throughout the data collection period KJL and CS created a framework matrix. The study used this data reduction tool, a matrix of cases and themes based on interview debriefs and individual interview codes, to track emergent ideas and concepts that affect intervention design and future interviews (Gale, 2013; Ritchie, 2013; Smith, 2011). After every 2–3 interviews, KJL and CS examined the framework matrix, identified reoccurring major themes, made changes to intervention content as appropriate, and then tested the edits in subsequent interviews. This method allowed for quick, iterative turnaround of participant feedback to intervention edits and modifications of interview questions.

The study team iteratively refined the coding structure after each interview, until it was determined that there were no additional themes within the scope of the parent project. The team established an audit trail to track coding decisions and other important aspects of analysis. At the completion of 24 interviews, the study achieved saturation of the data. Once we created the coding structure, KJL and CS independently coded each transcript. The coders then discussed each transcript to reach consensus about agreed upon codes to ensure comprehensiveness of coding. CS collapsed the two individual coding frameworks into one final agreed version. The project team discussed these summaries to develop the themes presented in this manuscript.

3. Results

Of the 28 participants who provided study consent, 24 completed interviews. The sample was intentionally balanced by gender (male/female), primary type of opioid use at treatment entry (prescription pills; heroin/fentanyl), and phase of recovery [early (≤ 8 weeks of treatment) vs. late (>8 weeks of treatment)]. The average age of the sample was 38.9 years (SD = 11.29), with 70.8% White and 8.3% Hispanic/Latinx. See Table 1 for a complete profile of participant demographics.

3.1. Themes

Themes are divided according to the two primary goals of this analysis: to elucidate (1) acceptability, feasibility, and perceived utility and (2) structure of a combined computer- and text message–based intervention for individuals initiating outpatient buprenorphine treatment for OUD. This information was further delineated by intervention modality (computer vs. text message; see Table 2 for a sample of illustrative quotes pertaining to primary themes).

3.1.1. Computer - Acceptability and feasibility

Theme A1: Individuals engaged in buprenorphine treatment for OUD are receptive to a computerized intervention that incorporates a motivational- and distress tolerance–based framework –: The majority of interviewed participants appeared enthusiastic about a computer-delivered intervention designed to support the early phase of recovery. However, two of the participants stated that they would prefer to have the material delivered by a person, citing discomfort with technology as a barrier.

Interviewees were receptive to the skills presented and believed that these strategies would help individuals to be more successful in recovery: “There’s definitely a lot of helpful things on there, a lot of ways to avoid going back to using. …” (participant 12). Participants who perceived themselves to be in long-term recovery explained that although they may not need the intervention at this time, they saw the benefit of introducing this material to individuals initiating treatment: “…because I have been clean, my way of thinking has changed, but somebody that’s in the throes of withdrawal and wanting to get clean, if they really want it, this will be helpful” (participant 5).

Theme A2: The presentation of material, including the length of the intervention, is effective in facilitating learning –: Interviewees reported that the length of the computerized intervention was adequate to learn new skills, but not too long as to lose interest. Further, participants found the content to be straightforward, understandable, and the text easy to read. Several participants spontaneously described themselves as "poor readers" but were still able to understand core concepts.

3.1.2. Computer - Structure

Theme B1. Individuals should be given the flexibility to complete the computerized intervention at the clinic or from the privacy of their own homes –: Of the 24 participants interviewed, 9 indicated a preference for completing the intervention at the clinic, 8 indicated a preference for completing the intervention in the privacy of their own homes, and 7 did not provide a preference. Participants cited the fear of not following through with the program as the primary reason for preferring to complete it at the clinic. However, participants also described a desire for confidentiality and concerns about family members finding out about substance use treatment as another reason. Participants preferring to complete the intervention at home identified similar reasons. These interviewees explained that it would be easier to concentrate on the material at home; additionally, home offered a greater sense of privacy. Such data underscore the need to take into account patients' preferences when administering a computerized intervention that could be effectively delivered in a variety of settings.

Theme B2. The intervention should be offered to individuals entering treatment –: All participants agreed that the intervention is well suited for individuals newly entering treatment. Overall, there was consensus among participants that the intervention should occur within the first week of treatment. However, several interviewees expressed concern that offering the intervention too soon could overwhelm prospective participants. Similarly, participants questioned whether an individual would be able to focus on the material if actively experiencing opioid withdrawal: "Honestly, I think it's gonna depend on the person, 'cause if I was in withdrawals, I would not have really cared. I'd just be like, 'I don't feel good, just get me out of here'" (participant 15).

3.1.3. Text Message – Acceptability, feasibility, and perceived utility

Theme C1. Individuals engaged in buprenorphine treatment for OUD are receptive to a text message–delivered intervention that provides personalized feedback on motivational factors and distress tolerance–based skills –: Participants were universally enthusiastic about a text message-based intervention to support the early phase of recovery: "You know, it kind of feels like someone's rootin' on for you, like, 'you got this!'" (participant 7). Although study staff informed participants that the text messages will be automated (and not delivered by a live person), interviewees still perceived the program to be supportive and caring: "I think it'll help a lot of kids that are in recovery recover a lot better, knowing that they have someone that cares, knowing that they want—someone else wants to help them" (participant 21).

Several participants described the benefits of receiving support via text messages, citing accessibility of cell phones as an advantage. Participants also acknowledged that augmenting standard treatment with text message–based support might bolster recovery.

Theme C2. Text messaged–based interventions do not represent a privacy concern –: When queried about potential concerns related to privacy and text messaging, none of the participants endorsed any apprehension about using this platform. Interviewees emphasized that most cell phones have the ability to be locked, and therefore, users of the intervention could prevent others from seeing the material if so desired: “usually people have their phone locked now…fingerprint/iris” (participant 5). One participant suggested that the text messages should come from a nonspecific number to avoid others knowing about the program.

Theme C3. The use of technology for intervention delivery helps to overcome fears of judgment stemming from stigmatizing experiences –: Numerous participants endorsed greater comfort with technology (compared to treatment providers) due to fears about judgment. Interviewees reflected that it may be easier to ask for help through text message. One participant stated, “I’m not great with my feelings” (participant 15), and posited that it may be easier to express oneself through technology. Across the sample, participants expressed an overarching sentiment that there were fewer potential repercussions when interacting with technology compared to a live person.

3.1.4. Text Message - Structure

Theme D1. The text message intervention should deliver both predetermined (automatic) and on demand messages –: Participants were receptive to a standard schedule of text messages that focused on providing a motivational reminder and distress tolerance skill suggestion. Most interviewees recommended sending 2–3 messages per day; participants perceived morning and evening to be the most challenging times of day where extra support is needed. Participants were also enthusiastic about the opportunity to request additional support on an “as needed” basis using keywords.

Theme D2. The messages may be automated but must be personalized –: Participants universally stated that although they understand that the program would be automated, they wanted their messages to be personalized. Interviews made it clear that if the messages came across as repetitive or generic, the user of the intervention would potentially lose interest. Customizing the messages so that they are responsive to individual needs will increase the likelihood of benefitting from the program: “If it’s personalized, it’s like this is pertainin’ to the answers that I gave, and so it’s gonna help me. It’s not for anybody else. It’s just for me … That feels good” (participant 27).

Theme D3. The use of multimedia is encouraged to increase interactivity –: Nearly all participants described a desire to incorporate multimedia, such as emojis, gifs, and videos, into the text message content. These interviewees explained that the inclusion of multimedia made the interaction feel more personal: “Yeah. I think that is better because then you feel like you’re talking to a real person. You’re not talking to a computer or a robot” (participant

13) and “Yeah. An emoji ruler’s cool ‘cause that’s more eye catchin’” (participant 17). Two participants stated that they preferred plain text, while one other participant indicated a preference for plain text, yet acknowledged that the younger generations using the program would likely benefit from the inclusion of multimedia.

4. Discussion

This study presents novel qualitative data that highlights preferences for structure and acceptability elements of a combined computer- and text message–delivered intervention for individuals initiating buprenorphine treatment. Results of this study support that individuals with OUD, who are newly entering treatment, may be receptive to a digital health intervention designed to enhance motivation and improve the ability to cope with distress. Indeed, this sample of participants universally endorsed this program as a highly accessible, useful, and supportive tool to overcome some of the challenges that may arise in the early phase of recovery. Although participants recognized the importance of taking medication as part of their clinical care, they expressed an openness to incorporate additional sources of support and skills training into their treatment. Participants perceived the tone of the program to be supportive and caring despite being delivered through a technology-based platform.

Approaching the intervention with flexibility was an important recommendation stemming from interviews. For example, approximately half of the sample preferred to complete the computer portion of the intervention in the clinic to increase accountability and ensure privacy. However, the other half of the sample described a preference to complete it at home for many of these same reasons (e.g., better able to focus, increased privacy). While consensus occurred across the sample to deploy the intervention within the first week of initiating treatment, participants also encouraged flexibility in the timing to avoid overwhelming new patients who may be struggling to attend frequent appointments and/or experiencing opioid withdrawal.

Consistent with prior studies on text-message interventions (e.g., Head et al., 2013; Ranney et al., 2014), participants in this study emphasized personalization to increase acceptability and usability. Participants expressed a concern that if the messages came across as too generic or repetitive, then potential users of the intervention would disengage. Participants expressed a desire to tailor the intervention through: a) personalized content that is responsive to “real-time” needs; and b) inclusion of “on demand” messages that can be engaged with as needed. Given that motivational factors for entering treatment may vary greatly from person-to-person, participants were enthusiastic about a program that offered personalized motivational reminders that were specifically linked to each program user. Finally, participants perceived the use of multimedia (e.g., emojis, gifs, videos) as another potential way to increase personalization and interactivity.

Another overarching theme that emerged from our data was the unique ability for a technology-delivered intervention to overcome fears stemming from stigmatizing experiences. Many participants described discomfort with talking to friends, family members, and treatment providers about their substance use. Further, interviewees suggested

that it may be easier to ask for help via text message in the event that they experienced a return to use. Past research has documented the negative impact of stigma on seeking (Allen, 2019) and remaining engaged in (Tsai, 2019) substance use treatment. Thus, employing a digital health intervention, to augment standard buprenorphine treatment, may have important implications for overcoming barriers related to stigma to enable individuals to access critical support, particularly during high-risk periods (e.g., a return to substance use).

This study has several limitations worth noting. First, the study recruited participants from two outpatient clinics affiliated with the same academic medical center, potentially limiting generalizability. Different patterns of findings may emerge in other treatment settings. Second, although we attempted to recruit participants with varying backgrounds in terms of race and ethnicity, our sample primarily comprises white individuals. Important cultural differences may exist that could influence the acceptability and structure of this intervention. We included only English-speaking participants in the current study. Future research would benefit from greater inclusion of other races/ethnicities and non-English-speaking populations.

5. Conclusion

This qualitative analysis provides valuable insight into the acceptability and structure of a combined computer- and text message–delivered intervention for individuals initiating buprenorphine treatment for OUD. Although participants were universally enthusiastic about the content and delivery mode of the intervention, they made several recommendations to increase usability, including permitting flexibility with the timing and setting of the intervention and encouraging personalization. Incorporating thematic results on suggested structural changes may increase the feasibility/acceptability of this intervention to improve treatment outcomes by reducing illicit opioid use, increasing adherence/retention, and preventing future overdose and other complications of illicit opioid use.

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Highlights

- A combined computer- and text message-delivered intervention was developed to support buprenorphine initiation among individuals entering treatment for Opioid Use Disorder.
- Participants perceived the intervention to be highly acceptable.
- Several recommendations were made to increase usability, including permitting flexibility with the timing and setting of the intervention and encouraging personalization.
- Incorporating thematic results on suggested structural changes may increase the usability of this intervention to improve treatment outcomes by reducing illicit opioid use, increasing adherence/retention, and preventing future overdose and other complications of illicit opioid use.

Table 1.

Participant demographics (*N=24*).

	N (%)
Age (mean)	38.92
18–35	10 (41.7)
36–50	10 (41.7)
51–65	4 (16.7)
Sex	
Male	12 (50)
Female	12 (50)
Time in Recovery	
Early (≤ 8 weeks of treatment)	12 (50)
Late (>8 weeks of treatment)	12 (50)
Primary Type of Opioid Use	
Heroin/Fentanyl	12 (50)
Prescription Pills	12 (50)
Ethnicity	
Hispanic/Latino	2 (8.3)
Non-Hispanic/Latino	22 (91.7)
Race	
White	17 (70.8)
More than one race	3 (12.5)
Black or African American	2 (8.3)
American Indian or Alaska Native	1 (4.2)
Other Pacific Islander	1(4.2)
Relationship	
Never married	10 (41.7)
Living with someone	7 (29.2)
Married	3 (12.5)
Widowed	2 (8.3)
Divorced	1 (4.2)
Separated	1 (4.2)
Education	
Received GED	6 (25)
Graduated high school	5 (20.9)
Some college	4 (16.7)
Completed graduate or professional school	3 (12.5)
Grade 7–12 without graduating high school	2 (8.3)
Graduated 4-year college	2 (8.3)
Graduated 2-year college	1 (4.2)
Some graduate or professional school	1 (4.2)

Table 2.

Illustrative quotes pertaining to primary themes.

A. Computer feasibility/ acceptability/perceived utility	
A1. Receptivity to computerized intervention	ID5: It was more involved than I thought it would be, and I'm actually—I wish it was around when I was in doing this because it probably would have helped me through a lot of stuff, especially dealing with my mom's shit. ID20: It's really easy to understand and then I like all the different suggestions that are listed, and it helps you think of your own that you can add to the list. ID26: It's gonna really help somebody out and definitely save some lives. ID27: I didn't have these before. I didn't have stuff like this to look at and tell me—you know what I'm sayin'? Give me some instruction on how to not be distracted and go back to usin' drugs. Do you know how many times I tried to quit? You know what I'm saying?I dunno. This is great. This is really good. Yeah. I like that.
A2. Effective in facilitating learning	ID18: It'll make them think about it more 'cause, so I think that's also a good thing 'cause they'll sit there, and they'll think, this is what I have to do to stop. These are what's stopping me from stopping. I think it'd definitely be good for them. ID21: Just so I can think why I started using or why I wanna quit. If I had more time to sit and do that, I think I would understand myself more. ID27: Well, like I said, this is a—there's a lot of stuff here that I would never think of doin' to overcome an urge or somethin'. These things are new to me. I just never would think of these things.
B. Computer structure	
B1. Desire for flexibility in the delivery of intervention	ID2: Probably here at the clinic 'cause you don't know—for me, you don't know who can knock on the door. I'll be worried about someone's gonna find out, something like that. No. At the clinic, yeah. Definitely. ID3: I think I would prefer my home if I was gonna do it. I'm a more private person. ID8: A lotta people are in a rush, and they have a lotta things. Like me once—I have five kids. That would be very helpful to be at home once everybody's in bed and you'll be able to do it on my time. I think it'd be very helpful. ID13: I think I would rather do it here because I would have less distractions. Where at home, I may feel like I might put it off and not do it because I might have distractions at home that might take me away from doing it.
B2. Appropriate for patients newly entering treatment	ID6: If I was sitting there and I'm in here, and I walk out the door today after my first dose of Suboxone, and I'm gonna say I've been using drugs, opioids, whatever they may for the last two years, and my whole life's all f'ed up, and I'm getting ready to start over again, I'd love to see those everyday at first. ID7: It would be nice to receive it when I get here before I withdraw cuz you do a first appointment and then you come in…. I'd be more curious if anything. You know? When you're in that place where everything's horrible, you will do anything to make—to try to get better. That's how I feel. ID12: I think it can definitely be helpful. I think at the beginning, especially in recovery, anything extra to help you is good. I think it's a good idea. I just think that it's, like I said, it's gonna be something that people can actually use or be applied. ID21: I wish I had that option, because honestly, I think it'd help my recovery a lot better. When you first come in here, you're like nothing's gonna work, blah, blah, blah, but honestly, to have someone like that to text message you and all that, I think that's gonna help them a lot.
C. Text message feasibility/ acceptability/perceived utility	
C1. Receptivity of text message intervention	ID2: For me, it just reminds me, just maybe, like I said, stay strong today. ID6: It will because the support of knowing you're not alone and everything else, along with that, with the medication is the two combined to give you the most effective treatment possible, but what you guys are doing I think is incredible. I really feel that way.

	ID10: If I had the option, I may have used it right off the bat. Yeah. When I was in the dumps or feelin' bad or whatever dependin' on what the situation was, and I just hit a button and it tells me the response, yeah. ID16: For real 'cause you might—that text message at that time may come at the right time to where you were having a thought that you wanted to go use again and you were like trying to stop yourself. Hesitating by not wanting to pick up the phone and call your sponsor like you're supposed to do, but you're trying to find a way out. Then boom you get a text message.
C2. No concerns about privacy	ID4: It shouldn't say, "From [PLACE]," because they might—I don't know, they might be keepin' it from their loved ones or other ones, and then if you see the text, it's like, "Okay, what's this about?" Keep it generic. Generic would be I get these texts that are from numbers, not a name, so it's just random numbers, and then it'll say a message. ID5: No, because usually people have their phones locked now. Mine's fingerprint/iris—there's nobody getting—it's Fort Knox. No one's getting in there. Even if I lost it, there's no—they try three times and it's erased, and nobody's getting in it. Most people, that's what they do to their phones now, so I don't think so. ID18: I don't mind. It's all confidential and everything, so it's not like your name's gonna get put up on Google or something.
C3. Technology-based platforms help to overcome fears of judgment	ID16: No, because you have like another support system just through text message and everybody's always on their phones. People are always getting text messages. They're always texting. To have a reminder text is really good 'cause some people are not going to go to a meeting, or they're not going to call that support system 'cause they feel embarrassed that they might say, "Oh, see I knew that was going to happen to you." So through a text message is like more privacy. ID18: I think it's good. I think for people that don't want to talk to someone about their problems and stuff, this will be very helpful. ID24: That's why I think it's cool. Some people don't like talkin' on the phone. This could be really good for people that just need—you know what I mean? Even though you're feeling like that, you still don't wanna be—and you don't wanna be around people. You know what I mean? You don't want to talk anyone. Yeah, that is a good—that's a good idea.
D. Text message structure	
D1. Mix of scheduled and on demand messages	ID5: I'd say at least one in the morning, maybe noontime. I'd say one in the morning to get them started, one at around noontime or whatever, the midday. Then I would leave it—if they need it—put in whatever, like, "I'm anxious" or whatever and have them beep it. But at least once or twice a day. I would say morning and afternoon. Like a wake-up call and then a "you can do this." ID9: Possibly once a day, and if it was possible to get more, that should be—if there was a way for me to—if I was havin' a rough day, I'd be able to get more. ID10: It depends on what they're feelin' like. I would probably say no more than three…. If they are havin' 'em [cravings], and they text you, definitely for as long as they need it. ID12: I would prefer them once every morning, but also, I guess, have the option if you're in a situation where you need something to be able to reach out.
D2. Need to be personalized in nature	ID4: When you have a program like this that is tailored to your needs and your needs only, it actually helps. ID19: Text messages, if they're geared to the person and your computer program really individualizes the person and they're not just generic messages sent out the same message to everybody, then I think it would work. "Hey, have a good morning; remember to stay sober" to everybody, that may not work. If they're geared to the person because of what they selected on their survey, then I think it could work. ID27: I think it's great because why do you wanna go through tryin' to avoid somethin' or get off a drug or somethin' and havin' to read—just reading things of—that involve all types of people? That might not be for you. If it's personalized, it's like this is pertainin' to the answers that I gave, and so it's gonna help me. It's not for anybody else. It's just for me. So, you know, That feels good.
D3. Encourage the use of multimedia	ID4: I think videos would be helpful because you'll get your mind off of—I mean, emojis gonna be—I think, I don't know about the emoji thing, but video, a nice video. That would kinda change your mood, your mind, especially inspirational ones. ID20: Emojis are cool, I guess. I like videos. I like to see things visually. Yeah. Would you be able to text back if we said we're sad or something, you could send a cute video or something. I don't know—cute dog video or something. ID21: That's a lot more relatable, yes. I think you should make it—I would say the happy faces, sad faces… I think that'd be cool, the numbers with emojis…I'm a more visual person. I don't know if a lot of people are, but to me, that'd help me a lot is more visualizing things.

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