

UCLA

UCLA Previously Published Works

Title

Feasibility and Acceptability of Mobile Phone Self-monitoring and Automated Feedback to Enhance Telephone Coaching for People With Risky Substance Use: The QUIT-Mobile Pilot Study.

Permalink

<https://escholarship.org/uc/item/81z433bq>

Journal

Journal of Addiction Medicine, 15(2)

ISSN

1932-0620

Authors

Swendeman, Dallas
Sumstine, Stephanie
Aguilar, Efren
et al.

Publication Date

2021-03-01

DOI

10.1097/adm.0000000000000707

Peer reviewed

1 **Feasibility and acceptability of mobile phone self-monitoring and automated feedback to**
2 **enhance telephone coaching for people with risky substance use: The QUIT-Mobile Pilot**
3 **Study**

4
5 Dallas Swendeman, PhD, MPH¹; Stephanie Sumstine, MPH¹; Efren Aguilar, BS²; Pamina M.
6 Gorbach, MHS, DrPH³; W. Scott Comulada, DrPH¹; Lillian Gelberg, MD, MSPH²

7
8 ¹ *Department of Psychiatry & Biobehavioral Sciences, Semel Institute, University of California,*
9 *Los Angeles, 10920 Wilshire Blvd., Suite 350, Los Angeles, CA 90024*

10 ² *Department of Family Medicine, David Geffen School of Medicine, University of California, Los*
11 *Angeles, 10880 Wilshire Blvd, Suite 1800, Los Angeles, CA 90024*

12 ³ *Department of Epidemiology, School of Public Health, University of California, Los Angeles,*
13 *Box 951772, Los Angeles, California 90095-1772*

14
15
16 Corresponding author: Dallas Swendeman, PhD, MPH
17 Email: dswendeman@mednet.ucla.edu
18 Tel: +1 (310) 794-8278 Fax: +1 (310) 794-8297
19

20
21
22 **Acknowledgements:** This research was supported by the UCLA Center for HIV Identification,
23 Prevention, and Treatment Services (P30MH58107); the UCLA Center for AIDS Research
24 (P30AI028697); the UCLA Clinical and Translational Science Institute (UL1TR000124); and the
25 Beneventures Foundation. The content is solely the responsibility of the authors and does not
26 necessarily represent the official views of the funder. We would like to acknowledge the mStudy
27 for supporting recruitment activities, and we are grateful to the participants who contributed to
28 this study.

29 **ABSTRACT**

30 Objectives: This study evaluates the feasibility, acceptability, and perceived benefits of mobile-
31 phone delivered self-monitoring queries and feedback integrated into the evidence-based QUIT
32 screening and brief telephone health coaching intervention to prevent progression from risky
33 drug use to addiction as the QUIT-Mobile intervention.

34 Methods: Participants (n=20) were primarily Black/African American and Latino men in Los
35 Angeles with risky substance use. Self-monitoring surveys were sent by text-message twice-
36 weekly for 6 weeks and once-weekly from 6 to 12-weeks. Surveys consisted of 10 questions
37 regarding drug and alcohol use (i.e., # days of use) and cravings, quality of life, and medication
38 adherence. Feedback messages praised or encouraged drug use reductions. Coaches
39 monitored patient responses and discussed them in QUIT's telephone coaching sessions.
40 Participants' experiences were assessed qualitatively at 3-month follow-up.

41 Results: 19 out of 20 participants that completed the evaluation qualitative feedback from the
42 12-week follow-up reported: 1) self-monitoring surveys helped them adhere to drug use
43 reduction goals and reflect on associations between self-monitoring domains; 2) preference for
44 higher frequency (twice-weekly) self-monitoring during the 6-week coaching period, and then
45 weekly surveys thereafter but not monthly; and 3) self-monitoring and coaching were mutually
46 reinforcing for their drug use reduction goals.

47 Conclusion: Results are consistent with prior similar research suggesting that mobile phone self-
48 monitoring of drug use and related factors is feasible and acceptable among diverse adults with
49 risky drug use. Findings also suggest the potential benefits of integrating electronic self-
50 monitoring and feedback into substance use reduction interventions such as QUIT to enhance
51 patient self-management and coaching or counseling intervention components.

52

53 **Keywords:** Risky drug use; mobile phone; self-monitoring; automated feedback; SBIRT

54 INTRODUCTION

55 Substance use is a pervasive problem in the United States. Substance use and
56 substance use disorders have resulted in serious economic consequences, costing more than
57 \$400 billion annually in physical and mental health care costs and other indirect costs (i.e., loss
58 of productivity, increased motor vehicle crashes, spread of infectious disease) (National Drug
59 Intelligence Center 2011, Substance Abuse and Mental Health Services Administration (US)
60 and Office of the Surgeon General 2016). According to the 2016 National Survey on Drug Use
61 and Health, approximately 29 million people aged 12 or older reported using any illicit drug in
62 the past 30 days, with 24 million reported as marijuana, and the remainder reported as misusing
63 prescription pain relievers and stimulants, cocaine, hallucinogens, methamphetamine, and
64 inhalants (Center for Behavioral Health Statistics and Quality 2016). Substance use disorders
65 (SUDs) are associated with a range of medical, mental health, academic, workplace, safety,
66 violence and criminal justice problems. It is typically easier to intervene early in substance use
67 trajectories before they develop into SUDs and addiction, yet, our current healthcare and
68 prevention systems miss many opportunities for prevention and early intervention and specialty
69 treatment initiation and engagement is low (Loveland and Driscoll 2014, National Institute on
70 Drug Use (NIDA) 2019, Liu et al. 2020). Thus, in addition to implementation of treatment
71 services, more effort is needed to implement comprehensive prevention programs to reduce
72 substance use among people who are not yet addicted to prevent development of substance
73 use disorders and addiction.

74 The QUIT (Quit Using Drugs Intervention Trial) screening and brief intervention (SBI) is
75 one of the only SBIs for risky drug use in health care settings that has exhibited efficacy for drug
76 use reductions among U.S. adults (Baumeister et al. 2014, Padwa et al. 2014, Gelberg et al.
77 2015, Gelberg et al. 2017). QUIT's 1/3 to 1/2 reduction in drug use could have significant public
78 health impact for the 20-million people with risky substance use in the U.S. who could be

79 prevented from progression to a serious substance use disorder (SUD) (The National Center on
80 Addiction and Substance Use at Columbia University (CASA Columbia) 2012, U.S. Department
81 of Health and Human Services (HHS) Office of the Surgeon General 2016). Major challenges for
82 behavioral interventions such as QUIT are patients' low engagement in active self-management
83 during a) their daily routines, b) during the periods between intervention contacts (e.g., primary
84 care visits, counseling session), and c) sustaining drug use reduction after the brief
85 interventions end. Mobile phones and their integration into daily routines offers innovative and
86 potentially cost-effective opportunities to enhance and sustain the effects of brief interventions,
87 such as QUIT, by facilitating patient engagement and activation between coaching sessions
88 during daily routines (Barlow et al. 2002, Bodenheimer et al. 2002, Rotheram-Borus et al.
89 2012a) and sustaining changes after coaching ends (Fjeldsoe et al. 2009, Reback et al. 2012,
90 Finitsis et al. 2014).

91 Self-monitoring and feedback are two behavior change intervention core elements that
92 may enhance patient activation (i.e., their willingness and ability to take actions to reduce their
93 substance use) during daily routines and may be scalable, disruptive innovations in which even
94 small effects can have significant impacts at scale (Rotheram-Borus et al. 2012b). Self-
95 monitoring is a core element of self-regulation and self-management (Kanfer 1970, Bandura
96 1991, Kanfer and Gaelick-Buys 1991a) applied in a range of chronic conditions (Chorpita et al.
97 2005, Michie et al. 2013). Short message service (SMS) text-messaging enable self-monitoring
98 and automated feedback to be cheaply implemented and scaled. The theoretical bases
99 underlying QUIT's cognitive behavioral (Kanfer 1970, Bandura 1991, Kanfer and Gaelick-Buys
100 1991a) and motivational interviewing (Miller and Rollnick 2002, Miller and Rollnick 2013)
101 strategies emphasize that self-monitoring and feedback are integral to self-regulation and self-
102 management through self-observation, reflection, self-correction, and reinforcement via self-

103 reward, critique, and feedback (Kanfer 1970, Bandura 1991, Kanfer and Gaelick-Buys 1991a,
104 Prochaska and Velicer 1997, Rotheram-Borus et al. 2012b).

105 Feasibility, acceptability, and theory-based mechanisms underlying mobile self-
106 monitoring and feedback for drug use and related factors (e.g., triggers, craving, physical and
107 mental health symptoms) have been examined in several studies with substance using patients
108 (Ramanathan et al. 2012, Swendeman 2014, Comulada et al. 2015, Swendeman et al. 2015a,
109 Swendeman et al. 2015c, Swendeman et al. 2015d, Swendeman et al. 2016, Reback et al.
110 2019) and outpatient drug use disorder treatment clients (Comulada et al. 2015) but rarely in
111 conjunction with counseling or coaching. Only a few pilot studies published to date examined
112 mobile self-monitoring to enhance motivational interviewing and other interventions for clinic
113 patients to reduce substance use (Copeland and Martin 2004, Simpson et al. 2005, Lightfoot et
114 al. 2007, Sinadinovic et al. 2010). Coach dashboards displaying patient self-monitoring data
115 have demonstrated acceptability and perceived benefits (i.e., to counseling activities) when
116 used by counselors in an outpatient methamphetamine treatment program in conjunction with
117 substance abuse counseling (Swendeman et al. 2015d).

118 This study aimed to assess the feasibility, acceptability, and perceived benefits of
119 enhancing the QUIT intervention with three key functions (QUIT-Mobile): 1) patient self-
120 monitoring of drug use and related factors (i.e., cravings, physical and mental health
121 symptoms/QoL) by SMS twice weekly through 6 weeks during QUIT coaching, and then weekly
122 from 6-12 weeks; 2) weekly automated feedback on goal progress for reducing drug use; and 3)
123 dashboards for coach monitoring to use in coaching sessions and to follow-up if drug use
124 increases. This feasibility study also incorporated medication adherence monitoring and
125 coaching, building upon QUIT's health and wellness orientation, in order to explore expanding
126 the scope of the QUIT intervention to address medication non-adherence that has been linked
127 to substance use and SUD and for potential application in specialty care settings such as HIV

128 clinics (Gonzalez et al. 2011). We hypothesized that mobile self-monitoring will be feasible,
129 acceptable, and useful for participants in self-managing and adhering to their drug use reduction
130 goals, linked quality of life and health self-management factors, and for coaches to facilitate
131 coaching sessions.

132 **METHODS**

133 Participants were recruited from a longitudinal cohort study of people who use drugs in
134 Los Angeles, more specifically, a cohort of minority men who have sex with men recruited
135 through federally qualified health center (FQHC) primary care and HIV specialty care clinics
136 (<http://themstudy.org/>) (Okafor et al. 2017, Gorbach et al. 2019, Javanbakht et al. 2019). As part
137 of the secondary aim of the study, this cohort contributed to the original QUIT study intervention
138 by exploring its application and tailoring for more diverse populations, and within HIV specialty
139 care settings. A recruitment letter was emailed to cohort participants who reported substance
140 use in the past three months in a prior cohort assessment interview. The study was referred to
141 as the “Living Well Study,” per the QUIT intervention protocol. The protocol for this study was
142 approved by the Institutional Review Board of the University of California, Los Angeles. All
143 study participation was conducted remotely by email, telephone, text-messaging, and internet.

144 Eligibility criteria included: 1) being 18 years and older; 2) have a working phone
145 number; 3) English-speaking; 4) ASSIST score between 4 and 26 indicating risky (moderate)
146 drug use during eligibility screening, and used the “highest scoring drug” (HSD) on the ASSIST
147 in the past 30 days; and 5) not enrolled in a substance use treatment program in past three
148 months, which indicates recent SUD and an exclusion criteria for the QUIT intervention.

149 *Incentives.* Participants earned up to \$100 in Amazon electronic gift cards. Participants
150 earned \$40 for completing the baseline assessment, \$10 for a 2-week follow-up assessment,
151 \$10 for a 6-week follow-up assessment, and \$40 for a 3-month assessment and interview. Gift

152 cards codes were emailed to participants upon completion of each study activity. Incentives
153 were not provided for responding to self-monitoring surveys.

154 *WHO ASSIST Screening.* Risky drug use was assessed with the World Health
155 Organization Alcohol Substance Involvement Screening Test (ASSIST) (Who Assist Working
156 Group. 2002, World Health Organization. 2010), which identifies risky drug using patients as “at
157 risky of health and other problems because of their drug use” or “at high risk of severe health
158 and other problems because of their drug use.” The ASSIST asks about tobacco, alcohol,
159 marijuana, crack/cocaine, opioids, methamphetamine/amphetamine type stimulants, inhalants,
160 sedatives, and hallucinogens. Its ability to classify patients based on degree of illicit drug use
161 has been validated (Humenuik et al. 2008). Participants’ use of each drug category (excluding
162 alcohol and tobacco) were coded as: no or low use (score 0-3); risky (moderate) use (score 4-
163 16); or high use (score 17-26). Scores of 27+ indicate SUD warranting referral to treatment
164 rather than the QUIT SUD prevention intervention.

165 After screening, the research assistant (RA) sent participants a web-link to an online
166 consent form via text or email. Enrolled participants completed a baseline questionnaire
167 querying about demographic characteristics, past 30-day drug and alcohol use, and medication
168 adherence (for participants taking medications). Participants were also asked if they preferred to
169 use a code name for their HSD in text-message surveys and coaching sessions. The RA then
170 sent participants a link to a video doctor who gave brief clinician advice (<4 minutes), per the
171 original QUIT protocol.

172 Of the 120 participants who were invited to participate, 39 replied and were screened for
173 risky drug use. Of the 39 participants who were screened, 22 were eligible and consented to
174 participate. One withdrew from the study and one was lost to follow-up immediately after the
175 baseline resulting in 20 participants in this study (see Figure 1).

176

-- Figure 1 here--

177 *QUIT-Mobile Intervention Description*

178 The QUIT-Mobile intervention described in this study uses the original QUIT screening
179 and brief telephone coaching intervention protocol with the addition of the mobile self-
180 monitoring, automated feedback and coach dashboards showing participant self-monitoring
181 responses. The coach dashboard was not the focus of this study but is an important note
182 because it makes the individual self-monitoring data visible and actionable by coaches to use in
183 the QUIT telephone coaching sessions. These intervention components are described briefly
184 below, including the QUIT intervention and how the mobile elements were incorporated into the
185 telephone coaching.

186 *Self-monitoring surveys.* Participants received self-monitoring surveys by SMS twice
187 weekly for the first 6-weeks after enrollment, coinciding with QUIT's two telephone coaching
188 sessions at weeks 2 and 6 (described below), and then self-monitoring once-weekly from 6-
189 weeks to 12-weeks. Surveys consisted of 10 questions, taking less than four minutes to
190 complete, on alcohol and drug use (i.e., # days of use), cravings for their HSD, Quality of Life
191 (QoL; i.e., fatigue, energy, activity limitation, depression/sadness, anxiety/worry, perceived
192 stress, sleep) and medication adherence (see Table 1). The QoL questions were adapted from
193 the SF-12 measure (Life Data 2018, RAND Health Care 2019) and used in prior mobile self-
194 monitoring studies, which found that participants were highly engaged with questions on their
195 physical and mental health symptoms/QoL (Swendeman et al. 2015a, Swendeman et al. 2015b,
196 Swendeman et al. 2015c, Swendeman et al. 2018) . Similarly, the QUIT intervention trials
197 demonstrated improvements in perceived QoL in patients, since QoL and drug use are
198 associated in terms of both triggers and consequences of drug use (Baumeister et al. 2014).
199 The twice weekly surveys were sent on Monday to assess weekends and Fridays to assess
200 weekdays.

201

--Table 1 here--

202 *SMS Feedback Messages.* Participants received SMS feedback messages upon
203 completion of the SMS survey. Coaches scheduled the delivery of feedback messages to mimic
204 automated delivery that would occur through a large-scale program. Messages were tailored to
205 the participant's self-monitoring responses on their HSD use based on reducing, no change, or
206 increasing number of days used in reference to the prior week's response: 1) a reward message
207 (e.g., "great job meeting your goal this week"); 2) encouragement message (e.g., "some weeks
208 are harder than others, stay focused on your goal, you can do it!"). In cases of non-response, a
209 follow-up message was sent (e.g., "We haven't heard from you this week. Hope you are well.
210 Please check-in to let us know"). To be consistent with the QUIT intervention's simultaneous
211 focus on drug use and QoL, feedback was also provided on responses to SMS questions on
212 QoL, depression, anxiety, and medication adherence questions (e.g., "You felt healthy and full
213 of energy this week and were able to get more rest/sleep! Keep it up!").

214 *Phone Coaching.* QUIT-Mobile includes the QUIT intervention's video doctor (as noted
215 above) and two 30-minute telephone coaching sessions delivered by paraprofessionals at two-
216 and six-weeks after enrollment. This study integrated discussion of self-monitoring data into the
217 coaching sessions. At the two-week coaching session, after introductions and ground rules,
218 coaches first briefly recapped (3 minutes) the patient's self-monitoring data that were displayed
219 on the coach's dashboard as follows: 1) HSD use assessment by first commenting on available
220 self-monitoring data (e.g., "Your mobile data showed that you used your HSD # days in the past
221 week), and then eliciting a confirmatory response (i.e., per QUIT standard protocol for HSD
222 assessment); 2) asking if the patient had any new insights about their HSD use and associated
223 factors from the self-monitoring or in general; 3) coach acknowledgement of the patient's
224 observations, and then brief mention of any trends evident to the coach on the dashboard data
225 on HSD use and other self-monitoring questions (i.e., "Use seemed to occur more on days you

226 were feeling [sad, anxious, worried, etc.]"; and 4) stressing the importance of self-monitoring to
227 enhance and maintain drug use reductions.

228 Coaching session content, per the QUIT protocol, also includes discussing barriers and
229 facilitators to reducing/quitting risky drug use, rating willingness to reduce/quit use of HSD on a
230 scale of one to ten, and referring participants to indicated resources and services. The session
231 concludes with the coach assisting the patient in setting a concrete and tangible goal to reduce
232 use of their HSD. Examples of goals included: 1) Change morning routine to include exercise
233 and stretching to reduce urge to smoke marijuana, 2) Reduce use of amphetamines to only the
234 weekends, and 3) Continue sobriety by focusing on school and eating a healthy diet. The mobile
235 component in this study also added a query to the patient about whether they wanted to change
236 automated feedback message content, timing of self-monitoring prompts, or day of week of the
237 weekly survey and feedback message.

238 The six-week QUIT coaching call served as a check-in call to assess if there were
239 changes with the participants' risky drug use, quality of life factors, and need for referrals. This
240 study incorporated review of self-monitoring responses as described for the 2-week coaching
241 call above. The coach adjusted the "plan" goal if deemed necessary by the participant.

242 *Assessment Interviews*

243 *6-week and 12-week Assessments.* At the study mid-point at 6-weeks and at the 12-
244 week end-point, RAs conducted assessment interviews consisting of a brief survey of past 30-
245 day drug use and 15 qualitative and quantitative questions about participant satisfaction,
246 experiences, and feedback about self-monitoring survey content and frequency, and coaching
247 sessions. Initial questions were non-directive followed up by specific probes. Qualitative
248 examples included: 1) Please tell me about your experiences and thoughts regarding the cell
249 phone text message surveys you received; 2) Do you have suggestions for changing the cell

250 phone survey content, the words we used, or the topics we asked about?; 3) In what ways do
251 you think the cell phone surveys benefitted you in addition to the telephone coaching you
252 received at 2- and 6-weeks?; 4) Did you notice any trends or patterns in your drug and/or
253 alcohol use from the cell phone surveys, including triggers, feelings, and/or cravings for your
254 [HSD]?; 5) What are your thoughts on how frequently we sent the cell phone surveys? (i.e.,
255 twice-weekly versus once-weekly); 6) What are your thoughts on the content and topics of the
256 cell phone surveys? Responses were typed verbatim.

257 **Data Analyses**

258 Qualitative data on patient-experiences related to feasibility, acceptability, feedback, and
259 suggestions were analyzed. Qualitative content analysis was used to generate substantive
260 codes and subthemes that emerged from the data. The primary domains were predetermined
261 based on the semi-structured interview guide and study aims, while the sub-theme code
262 identification was informed by a grounded theory approach. The responses were coded in
263 iterative rounds by the two research assistants (RAs) and by the lead investigators. Two RAs
264 coded the data independently, with the lead investigators reviewing the results to resolve any
265 discrepancies. The code themes from the evaluation interviews were: feasibility, acceptability,
266 self-reflection, self-monitoring and motivation, and timing and frequency of SMS surveys.
267 Descriptive analyses for demographic characteristics were conducted with simple frequency
268 distribution statistics (e.g., mean, range).

269 **RESULTS**

270 *Baseline Participant Characteristics.* A majority of the sample identified as Black/African
271 American (55%), followed by Latino/Hispanic (30%), White (5%), Asian or Pacific Islander (5%),
272 and Other (5%). Approximately 60% of the sample was HIV-positive. Approximately 75% of the
273 sample identified as gay, 15% bisexual, 5% queer, and 5% heterosexual. The mean age was 34

274 years old with a range of 26 to 45 years. The HSD on the baseline ASSIST that were the
275 primary targets for substance use reduction in the QUIT coaching sessions were marijuana
276 (65%), amphetamine type stimulants (25%), cocaine/crack (5%), and inhalants (5%).

277 *QUIT-Mobile Intervention Participation and Satisfaction.* Participants responded to 96%
278 of the self-monitoring surveys sent to them (i.e., completing at least one question for 336 of 349
279 prompts) and completed all ten questions for 88% of surveys sent (309 of 349). Figure 2 shows
280 details of messages sent and completion. Primary reasons why some weekly surveys were not
281 sent was due to the participant receiving their first survey on a Friday, rather than a Monday,
282 resulting in a lapse of their first twice-weekly survey, one participant opting to receive surveys
283 only once a week instead of twice during the first 6 weeks of the intervention, temporary
284 suspension of mobile phone service until a bill was paid, or a participant traveling internationally
285 and unable to use their cell phone SMS service (see Figure 2). Overall, 95% of participants that
286 completed the survey were also sent automated feedback (294 of 309) and 47% that received
287 the feedback responded to it (147 of 294). Participants responded to about half of the
288 automated feedback to either thank the sender or acknowledge receipt of the message even
289 though this was not instructed per the protocol.

290 --Figure 2 here--

291 There was also high telephone coaching participation with 93% of sessions completed (2
292 per participant). There was also high satisfaction with the intervention. At the mid-point
293 evaluation, which was incorporated into the 6-week coaching session, 19 of 20 participants
294 (95%) stated that they would recommend the QUIT-Mobile intervention to family and friends
295 (see Table 2). About 70% of participants reported being very satisfied or extremely satisfied with
296 the intervention (35% each). When the participants were asked about which of the components
297 of the intervention motivated them to continue participating, 80% (16 of 20) reported that the
298 self-monitoring surveys were the primary motivating component. Lastly, 60% reported no issues

299 that prevented them from participating in the intervention. Almost all (19 of 20) also completed
300 the 12-week end-point assessment, with responses highly consistent with the mid-point
301 evaluation (see Table 2).

302 --Table 2 here--

303 *Evaluation Interview Qualitative Feedback of the QUIT-Mobile Intervention.* Table 3
304 shows example quotes from participant feedback on their experience with the QUIT-Mobile
305 intervention in the following domains: feasibility; acceptability; self-reflection, awareness, and
306 reminders; self-monitoring with coaching to support motivation; and timing and frequency of self-
307 monitoring surveys. For feasibility, participants reported how easy and discrete the self-
308 monitoring surveys were, indicating the feasibility of self-monitoring. For acceptability,
309 participants also expressed positive thoughts and feedback about their experiences with the
310 self-monitoring survey questions and the intervention overall. A common theme of self-reflection
311 and awareness regarding their drug use emerged as participants reflected on their weekly
312 behaviors while completing SMS self-monitoring responses, and reinforced during coaching
313 calls when they were prompted to identify associations between their substance use and their
314 quality of life. Participants also noted how the SMS texts and their responses also functioned as
315 reminders for their goals. Participants were asked what components of the intervention
316 motivated them to continue participating in the intervention, with several noting that rapport with
317 the coach in conjunction with self-monitoring surveys helped them feel connected, supported,
318 and motivated. Participants also reported on their perceptions of the coach presence in the
319 simulated automated feedback messages with several participants reporting that they liked that
320 the coach was perceived to be present behind the automated feedback (even though coaches
321 did not respond to participants' responses to feedback). Several participants were also more
322 engaged and responsive to the automated feedback pertaining to their quality of life or mental
323 health relative to feedback on their drug use. Finally, in terms of timing and frequency of self-

324 monitoring surveys, participant feedback was consistent in supporting the twice-weekly during
325 the 6 week coaching period with weekday and weekend reporting was optimal, but not daily,
326 while during the post-coaching period weekly monitoring was best and that monthly would be
327 too infrequent.

328 --Table 3 here--

329 *Participant Drug Use Reduction.* Cannabis was the most commonly used drug, with 17
330 of 20 participants reporting use in the past 30 days. Of the 17 participants who reported past 30
331 day cannabis use, 11 had reductions at 3-months follow-up, with a mean of 3.82 days less use
332 [range 1-10 days]. In terms of HSD use as primary target of intervention, 8 of 13 participants
333 had reductions in cannabis use, with a mean of 4.38 days less use [range 1-10 days]. HSD data
334 for methamphetamine, cocaine, and prescription stimulants were combined into a “stimulants”
335 category; of the 5 participants who had stimulants as a HSD, one had reductions in use by 2
336 days [methamphetamine], which is consistent with the prior QUIT trials indicate less
337 effectiveness for stimulant use relative to other drugs including opioids.

338 **DISCUSSION**

339 This study suggests that QUIT-Mobile’s twice-weekly (for 6 weeks) and once-weekly (from 6 to
340 12-weeks) self-monitoring of drug use and quality of life to enhance a brief telehealth coaching
341 intervention to reduce risky drug use may be feasible and acceptable among people with risky
342 substance use, thus warranting further studies. The portability and convenience of mobile phone
343 integration into daily routines is creating innovative and novel ways to engage patients between
344 routine care visits. Participants in this study reported the mobile self-monitoring increased
345 awareness of their daily and weekly drug use and linked quality of life factors, as well as
346 motivation and intervention engagement. Self-monitoring and the self-reflection and the
347 paraprofessional coach-mediated discussion of self-monitoring data is consistent with the

348 motivational interviewing intervention developed by Miller and Rollnick (Huffman 2009), theories
349 of self-regulation and self-management (Bandura 1991, Kanfer and Gaelick-Buys 1991b), and
350 cognitive-behavioral strategies that are common core elements of evidence-based behavioral
351 interventions (Chorpita et al. 2005), all of which underpin the QUIT screening and brief
352 intervention (Gelberg et al. 2015). The purpose of health coaching is to motivate participants to
353 achieve goals that enhance their health behavior-related quality of life. A coach's role is to assist
354 patients with weighing options, planning and identifying challenges, goal-setting, listening,
355 facilitating, motivating, and providing feedback (Hayes et al. 2008). Participants in this study
356 noted that reviewing and discussing their self-monitoring survey responses with coaches helped
357 to keep them motivated and accountable to achieve their drug use reduction goals and to
358 remain engaged in the intervention.

359 The findings of this study are consistent with another similar pilot study that used a
360 smartphone app for self-monitoring to augment an outpatient methamphetamine treatment
361 program involving three group sessions a week and two 30-minute counseling sessions over 8
362 weeks (Swendeman et al. 2015d). In that study, participants were prompted to complete more
363 extensive self-monitoring five times a day, which was found to be acceptable given the
364 substance use disorder criteria for enrollment, intensiveness of the treatment program, and the
365 high levels of motivation from people enrolling in the treatment program. Participants in that
366 study noted feeling more "connected" to the counselor, and increased motivation and
367 accountability because they perceived monitoring by the counselor via dashboards. The current
368 study confirms that people with risky of substance use also find self-monitoring to be acceptable
369 and useful in supporting their drug use reduction goal attainment, but with lower frequency of
370 self-monitoring commensurate with the lower frequency of their drug use.

371 This study is not without limitations. First, this study was exploratory in nature, focused
372 on novel intervention component feasibility and acceptability, and the small sample of 20

373 participants was not powered for statistical analyses. Generalizability of our findings are limited
374 by lack of inclusion of women and heterosexual men, however, this limitation may be less of a
375 concern because other similar pilot studies have demonstrate feasibility and acceptability of
376 mobile self-monitoring of substance use with more diverse populations (Ramanathan et al.
377 2012, Swendeman 2014, Comulada et al. 2015, Swendeman et al. 2015a, Swendeman et al.
378 2015c). The rationale for the population included in this study was to address secondary aims of
379 exploring use of the QUIT intervention for HIV-positive and at-risk populations for potential
380 application in specialty care clinics, and to incorporate a medication adherence component as
381 substance use had been linked to medication non-adherence. Alcohol and tobacco use data
382 were not included in the analyses because the QUIT intervention focuses on risky drug use
383 reduction of the HSD; while it does not focus on alcohol or tobacco use, it does recommend
384 reduction of use of other substances in the risky range. Another limitation is that drug use was
385 self-reported by participants to the research assistants and was not validated with biomarkers
386 as was done in the prior QUIT randomized controlled trials and the future trial proposed for the
387 QUIT-Mobile intervention. Another factor worth noting is that none of the 120 screened
388 individuals were positive for opioid use and non-medical use. The opioid epidemic has swept
389 across the United States with nearly 12.5 million individuals reporting use of opioid pain
390 relievers in 2015 (Center for Behavioral Health Statistics and Quality 2016). Individuals who
391 misuse prescription opioids may face comorbid behavioral and mental health disorders and
392 physical health concerns (Becker et al. 2008). This intervention may function differently among
393 participants with opioid use and non-medical use as their HSD. The last limitation refers to
394 Table 2 and the motivating factors that participants had in completing the intervention, in whichh
395 an increased response to financial incentives (42.1%) was indicated during 12-week follow-up.
396 Incentives may be a limitation to widespread generalizability for scaling the intervention, and
397 future studies or evaluations should consider a randomized design with a non-incentivized arm.

398 **CONCLUSION**

399 Supplementing the QUIT intervention, and other behavioral interventions, with mobile self-
400 monitoring and feedback could offer a promising modality for engaging participants between
401 and beyond coaching sessions to enhance intervention efficacy. Further, incorporating mobile
402 technology into substance use prevention interventions may improve the reach, flexibility, and
403 communication with participants compared to being limited to in-person interventions. Future
404 research is needed to determine the effectiveness of integrating mobile self-monitoring and
405 feedback into behavioral interventions for reducing substance use. The results and participant
406 feedback from this study will guide a recently funded larger randomized controlled trial to test
407 the effectiveness of QUIT and QUIT-Mobile for drug use reduction over 3-months and 12-
408 months.

409 REFERENCES

410 1. Bandura A. Social Cognitive Theory of Self-Regulation. *Organizational Behavior and Human*
411 *Decision Processes* 1991;50:248-287.

412 2. Barlow J, Wright C, Sheasby J, Turner A, Hainsworth J. Self-management approaches for
413 people with chronic conditions: a review. *Patient Educ Couns* 2002;48:177-87.

414 3. Baumeister SE, Gelberg L, Leake BD, Yacenda-Murphy J, Mani V, Andersen RM. Effect of a
415 primary care based brief intervention trial among risky drug users on health-related quality of
416 life. *Drug Alcohol Depen* 2014;142:254-261.

417 4. Becker WC, Sullivan LE, Tetrault JM, Desai RA, Fiellin DA. Non-medical use, abuse and
418 dependence on prescription opioids among U.S. adults: psychiatric, medical and substance use
419 correlates. *Drug Alcohol Depend* 2008;94:38-47.

420 5. Bodenheimer T, Lorig K, Holman H, Grumbach K. Patient self-management of chronic
421 disease in primary care. *JAMA* 2002;288:2469-75.

422 6. Center for Behavioral Health Statistics and Quality. Results of the 2015 national Survey on
423 Drug Use and Health: Detailed Tables. In: Rockville, MD: 2016.

424 7. Chorpita BF, Daleiden EL, Weisz JR. Identifying and selecting the common elements of
425 evidence based interventions: a distillation and matching model. *Ment Health Serv Res*
426 2005;7:5-20.

427 8. Comulada WS, Lightfoot M, Swendeman D, Grella C, Wu N. Compliance to Cell Phone-
428 Based EMA Among Latino Youth in Outpatient Treatment. *J Ethn Subst Abuse* 2015;14:232-
429 250.

430 9. Copeland J, Martin G. Web-based interventions for substance use disorders: A qualitative
431 review. *J Subst Abuse Treat* 2004;26:109-116.

432 10. Finitis DJ, Pellowski JA, Johnson BT. Text message intervention designs to promote
433 adherence to antiretroviral therapy (ART): a meta-analysis of randomized controlled trials. *PLoS*
434 *One* 2014;9:e88166.

435 11. Fjeldsoe BS, Marshall AL, Miller YD. Behavior change interventions delivered by mobile
436 telephone short-message service. *Am J Prev Med* 2009;36:165-73.

437 12. Gelberg L, Andersen RM, Afifi AA, et al. Project QUIT (Quit Using Drugs Intervention Trial):
438 a randomized controlled trial of a primary care-based multi-component brief intervention to
439 reduce risky drug use. *Addiction* 2015;110:1777-1790.

440 13. Gelberg L, Andersen RM, Rico MW, et al. A pilot replication of QUIT, a randomized
441 controlled trial of a brief intervention for reducing risky drug use, among Latino primary care
442 patients. *Drug Alcohol Depen* 2017;179:433-440.

443 14. Gonzalez A, Barinas J, O'Cleirigh C. Substance use: impact on adherence and HIV medical
444 treatment. *Curr Hiv-Aids Rep* 2011;8:223.

445 15. Gorbach PM, Javanbakht M, Shover CL, Bolan RK, Ragsdale A, Shoptaw S. Associations
446 Between Cannabis Use, Sexual Behavior, and Sexually Transmitted Infections/Human
447 Immunodeficiency Virus in a Cohort of Young Men Who Have Sex With Men. *Sex Transm Dis*
448 2019;46:105-111.

449 16. Hayes E, McCahon C, Panahi MR, Hamre T, Phlman K. Alliance not compliance: coaching
450 strategies to improve type 2 diabetes outcomes. *Journal of the American Academy of Nurse*
451 *Practitioners* 2008;20:155-162.

452 17. Huffman MH. HEALTH COACHING: a fresh, new approach to improve quality outcomes
453 and compliance for patients with chronic conditions. *Home Healthc Nurse* 2009;27:490-6; quiz
454 496-8.

455 18. Humeniuk R, Ali R, Babor TF, et al. Validation of the alcohol, smoking and substance
456 involvement screening test (ASSIST). *Addiction* 2008;103:1039-1047.

- 457 19. Javanbakht M, Ragsdale A, Shoptaw S, Gorbach PM. Transactional Sex among Men Who
458 Have Sex with Men: Differences by Substance Use and HIV Status. *J Urban Health*
459 2019;96:429-441.
- 460 20. Kanfer FH. Self-Monitoring - Methodological Limitations and Clinical Applications. *Journal of*
461 *Consulting and Clinical Psychology* 1970;35:148-&.
- 462 21. Kanfer FH, Gaelick-Buys L. Self-management methods. In: Kanfer FH, Goldstein AP eds.
463 Helping people change: A textbook of methods. Elmsford: Pergamon Press, 1991a:305-360.
- 464 22. Kanfer FH, Gaelick-Buys L. Self-Management Methods. Elmsford, NY: Pergamon
465 Pergamon general psychology series, 1991b.
- 466 23. Life Data. Convert a traditional survey to an ESM measure. Available at:
467 [https://www.lifedatcorp.com/portfolio/translating-a-traditional-survey-to-an-experience-](https://www.lifedatcorp.com/portfolio/translating-a-traditional-survey-to-an-experience-sampling-measure-ebook/)
468 [sampling-measure-ebook/](https://www.lifedatcorp.com/portfolio/translating-a-traditional-survey-to-an-experience-sampling-measure-ebook/).
- 469 24. Lightfoot M, Rotheram-Borus MJ, Comulada S, Gundersen G, Reddy V. Self-monitoring of
470 behaviour as a risk reduction strategy for persons living with HIV. *Aids Care* 2007;19:757-763.
- 471 25. Liu J, Storer-Isser A, Mark TL, et al. Access to and Engagement in Substance Use Disorder
472 Treatment Over Time. *Psychiat Serv* 2020.
- 473 26. Loveland D, Driscoll H. Examining attrition rates at one specialty addiction treatment
474 provider in the United States: a case study using a retrospective chart review. *Substance Abuse*
475 *treatment, Prevention, and Policy* 2014;9:41.
- 476 27. Michie S, Richardson M, Johnston M, et al. The Behavior Change Technique Taxonomy
477 (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the
478 Reporting of Behavior Change Interventions. *Ann Behav Med* 2013;46:81-95.
- 479 28. Miller WR, Rollnick S. Motivational Interviewing: Preparing People to Change. New York:
480 Guilford Press, 2002.
- 481 29. Miller WR, Rollnick S. Motivational Interviewing: Helping people change. New York, NY: The
482 Guilford Press, 2013.
- 483 30. National Drug Intelligence Center. National drug threat assessment. In: Washington, DC:
484 U.S. Department of Justice, 2011.
- 485 31. National Institute on Drug Use (NIDA). Screening for Drug Use in General Medical Settings:
486 Resource Guide. In: 2019.
- 487 32. Okafor CN, Gorbach PM, Ragsdale A, Quinn B, Shoptaw S. Correlates of Preexposure
488 Prophylaxis (PrEP) Use among Men Who Have Sex with Men (MSM) in Los Angeles, California.
489 *J Urban Health* 2017;94:710-715.
- 490 33. Padwa H, Ni YM, Barth-Rogers Y, Arangua L, Andersen R, Gelberg L. Barriers to Drug Use
491 Behavior Change Among Primary Care Patients in Urban United States Community Health
492 Centers. *Substance Use & Misuse* 2014;49:743-751.
- 493 34. Prochaska JO, Velicer WF. The transtheoretical model of health behavior change. *Am J*
494 *Health Promot* 1997;12:38-48.
- 495 35. Ramanathan N, Swendeman D, Comulada WS, Estrin D, Rotheram-Borus MJ. Identifying
496 preferences for mobile health applications for self-monitoring and self-management: Focus
497 group findings from HIV-positive persons and young mothers. *Int J Med Inform* 2012.
- 498 36. RAND Health Care. 12-Item Short Form Survey (SF-12). Available at:
499 https://www.rand.org/health-care/surveys_tools/mos/12-item-short-form.html.
- 500 37. Reback CJ, Fletcher JB, Swendeman DA, Metzner M. Theory-Based Text-Messaging to
501 Reduce Methamphetamine Use and HIV Sexual Risk Behaviors Among Men Who Have Sex
502 with Men: Automated Unidirectional Delivery Outperforms Bidirectional Peer Interactive
503 Delivery. *Aids and Behavior* 2019;23:37-47.
- 504 38. Reback CJ, Grant DL, Fletcher JB, et al. Text Messaging Reduces HIV Risk Behaviors
505 Among Methamphetamine-Using Men Who Have Sex with Men. *AIDS and Behavior*
506 2012;16:1993-2002.

- 507 39. Rotheram-Borus MJ, Ingram BL, Swendeman D, Lee A. Adoption of self-management
508 interventions for prevention and care. *Prim Care* 2012a;39:649-60.
- 509 40. Rotheram-Borus MJ, Swendeman D, Chorpita BF. Disruptive innovations for designing and
510 diffusing evidence-based interventions. *Am Psychol* 2012b;67:463-76.
- 511 41. Simpson TL, Kivlahan DR, Bush KR, McFall ME. Telephone self-monitoring among alcohol
512 use disorder patients in early recovery: a randomized study of feasibility and measurement
513 reactivity. *Drug Alcohol Depend* 2005;79:241-250.
- 514 42. Sinadinovic K, Berman AH, Hasson D, Wennberg P. Internet-based assessment and self-
515 monitoring of problematic alcohol and drug use (vol 35, pg 464, 2010). *Addict Behav*
516 2010;35:853-853.
- 517 43. Substance Abuse and Mental Health Services Administration (US), Office of the Surgeon
518 General. Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and
519 Health. In: U.S. Department of Health and Human Services. ed. Washington, DC: 2016.
- 520 44. Swendeman D. Patient/Client Engagement and Activation Using Smartphone Apps, Text-
521 Messaging, Interactive Voice Response, and Mobile/Web Case Management Platforms. In:
522 *Journal of Mobile Technology in Medicine*, 2014:5.
- 523 45. Swendeman D, Comulada WS, Koussa M, et al. Longitudinal Validity and Reliability of Brief
524 Smartphone Self-Monitoring of Diet, Stress, and Physical Activity in a Diverse Sample of
525 Mothers. *Jmir Mhealth Uhealth* 2018;6:e176.
- 526 46. Swendeman D, Comulada WS, Ramanathan N, Lazar M, Estrin D. Reliability and Validity of
527 Daily Self-Monitoring by Smartphone Application for Health-Related Quality-of-Life, Antiretroviral
528 Adherence, Substance Use, and Sexual Behaviors Among People Living with HIV. *Aids and*
529 *Behavior* 2015a;19:330-340.
- 530 47. Swendeman D, Farmer S, Mindry D, Lee SJ, Medich M. HIV care providers' attitudes
531 regarding mobile phone applications and web-based dashboards to support patient self-
532 management and care coordination: Results from a qualitative feasibility study. *Journal of HIV*
533 *and AIDS* 2016;2.
- 534 48. Swendeman D, Jana S, Ray P, Mindry D, Das M, Bhakta B. Development and Pilot Testing
535 of Daily Interactive Voice Response (IVR) Calls to Support Antiretroviral Adherence in India: A
536 Mixed-Methods Pilot Study. *Aids and Behavior* 2015b;19:S142-S155.
- 537 49. Swendeman D, Ramanathan N, Baetscher L, et al. Smartphone self-monitoring to support
538 self-management among people living with HIV: perceived benefits and theory of change from a
539 mixed-methods randomized pilot study. *J Acquir Immune Defic Syndr* 2015c;69 Suppl 1:S80-91.
- 540 50. Swendeman D, Reback CJ, Medich M, Foxx-Drew D, Caruso M. Self-Monitoring by
541 Smartphone Ecological Momentary Assessment (EMA) to Support Outpatient
542 Methamphetamine Treatment: Preliminary Efficacy and Theory of Action from a Mixed-Methods
543 Randomized Pilot Study. In: *Addiction Health Services Research (AHSR) Conference*. Marina
544 del Rey, CA: 2015d.
- 545 51. The National Center on Addiction and Substance Use at Columbia University (CASA
546 Columbia). *Addiction Medicine: Closing the Gap between Science and Practice*. In: New York,
547 NY: 2012.
- 548 52. U.S. Department of Health and Human Services (HHS) Office of the Surgeon General.
549 *Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health*. In:
550 Washington, DC: HHS: 2016.
- 551 53. Who Assist Working Group. The Alcohol, Smoking and Substance Involvement Screening
552 Test (ASSIST): development, reliability and feasibility. *Addiction* 2002;97:1183-94.
- 553 54. World Health Organization. The Alcohol, Smoking and Substance Involvement Screening
554 Test (ASSIST): Manual for use in primary care. World Health Organization, 2010.

555

Figure 1. QUIT-Mobile Feasibility Study Design and Sampling Plan

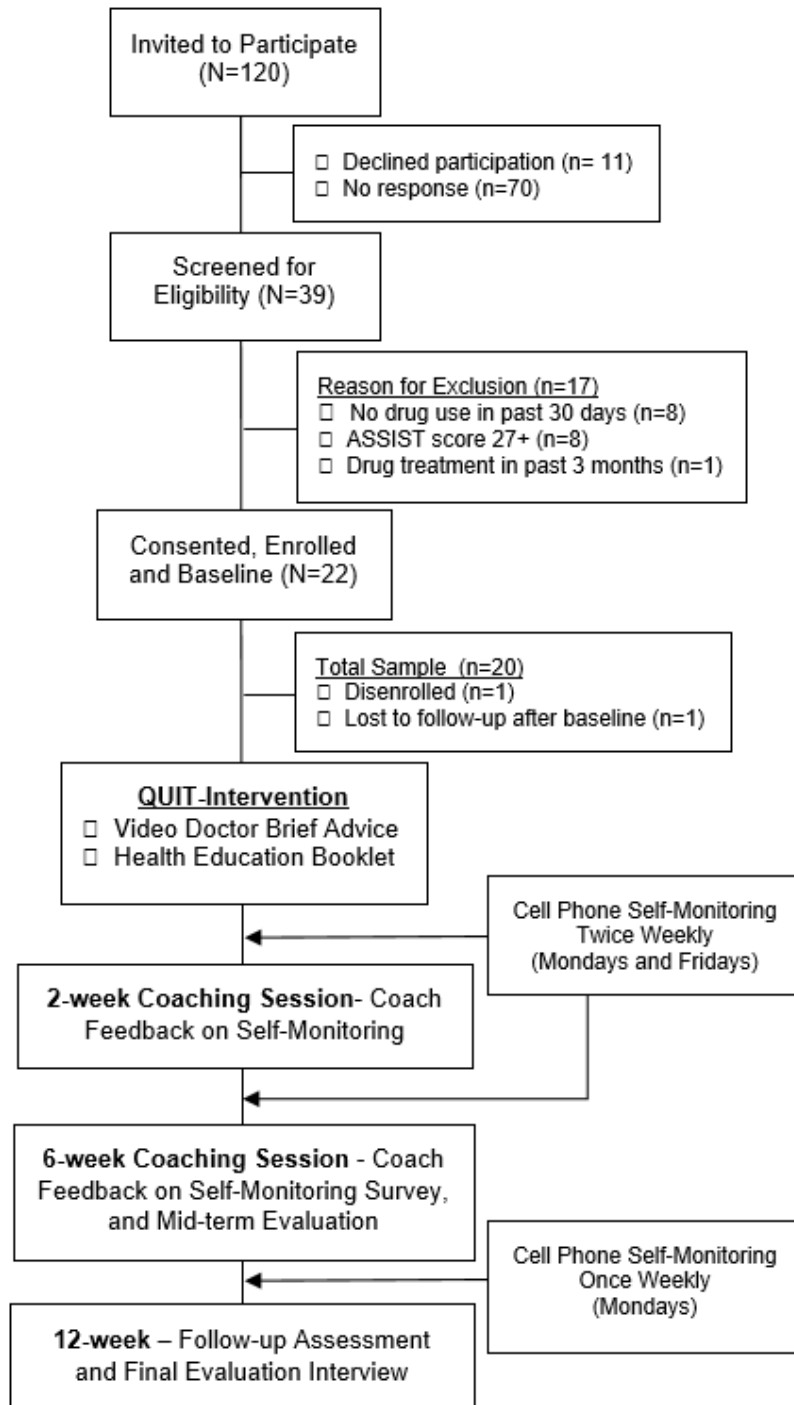


Figure 2. QUIT-Mobile Pilot's Text Message Surveys and Automated Feedback Response Flow

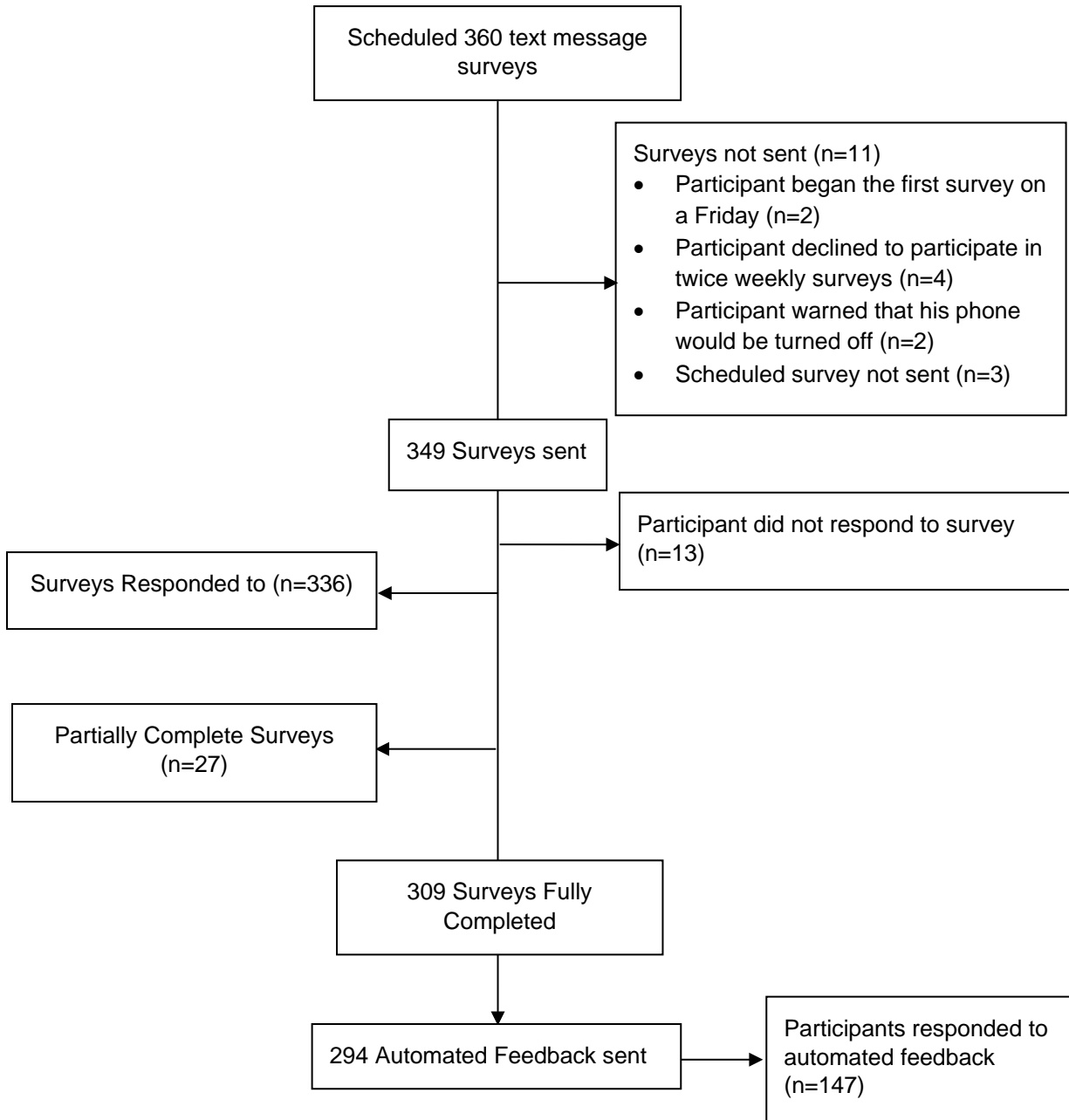


Table 1. Self-Monitoring Survey Questions of the QUIT-Mobile Pilot

Survey Prompts	<p>Weeks 1 to 6: <u>Monday Surveys:</u> The following questions are about the past weekend, from Friday to Sunday. Respond 0, 1, 2, or 3 for the number of days for each question. <u>Friday Surveys:</u> The following questions are about this week, from Monday to Thursday. Respond 0, 1, 2, 3, or 4 for the number of days for each question. Weeks 7- to 12: <u>Weekly Surveys:</u> The following questions are about the past 7 days. Respond 0 to 7 for the number of days for each question.</p>
Drug Use/ Cravings	<ol style="list-style-type: none"> 1. How many days did you use [HSD]? 2. How many days did you have cravings for [HSD]? 3. How many days did you use other drugs or alcohol? 4. How many days did you crave other drugs or alcohol?
QoL	<ol style="list-style-type: none"> 5. How many days did you feel sad, blue, or depressed? 6. How many days did you feel worried, tense, or anxious? 7. How many days did you not get enough rest or sleep? 8. How many days did you feel very healthy and full of energy? 9. How many days were usual activities hard to do?
Medication Adherence	<ol style="list-style-type: none"> 10. How many days did you skip, miss, or forget taking your medications?

Table 2. Intervention Evaluation Survey Responses of the QUIT-Mobile Pilot

	6-weeks	12-weeks
Question	N (%) n=20	N (%) n=19
(1) How satisfied are you with the intervention of the Living Well Study so far? [1-5] (Mean) "Not at all satisfied" to "Extremely satisfied"	3.95 (SD=1.05)	4.15 (SD=0.60)
(2) What components of the intervention motivated you to continue participating until now? (Mark all that apply)		
Twice-weekly cell phone surveys	7 (35.0%)	1 (5.3%)
Once-weekly cell phone surveys	2 (10.0%)	2 (10.5%)
Follow-up calls with Coach feedback	4 (20.0%)	5 (26.3%)
Getting cash for answering survey questions and follow-up calls	3 (15.0%)	8 (42.1%)
All the components	7 (35.0%)	10 (52.6%)
None of the components	2 (10.0%)	0 (0.0%)
(3) What are problems that prevented you from participating fully in this study? (Mark all that apply)		
Lack of time	5 (25.0%)	8 (42.1%)
Lack of interest in completing the text message surveys	1 (5.0%)	1 (5.3%)
There were no problems that prevented you from participating	12 (60.0%)	7 (36.8%)
Other problem(s)	3 (15.0%)	3 (15.7%)
(4) Would you recommend this intervention to your family and friends?		
Yes	19 (95.0%)	18 (94.7%)

Table 3. Qualitative Feedback of Self-Monitoring Surveys and Telephone Coaching of the QUIT-Mobile Pilot

Feasibility

Participant 1812: Everything is easily read and easily answered. The questions are as simple as they can get. I wouldn't change anything about the text-message surveys. They aren't interfering with anything I'm doing.

Participant 1803: They [self-monitoring surveys] were easy to answer. I like how you can start and stop later in the day in case something happens. No one can tell you're doing it.

Participant 1805: I like it because the other day I was on the bus answering those questions. It's more private.

Acceptability

Participant 1811: They're [self-monitoring surveys] well targeted. I wouldn't cut any of the questions.

Participant 1804: That interaction throughout the week was helpful. It's useful to have someone looking after me.

Participant 1801: It helped me so much to be honest. It made me think about all of my [problems]. Thank you for that.

Self-Reflection, Awareness, and Reminders

Participant 1814: I've been much more aware and cognizant of how much I smoke [marijuana]. I feel like I'm holding balance now.

Participant 1813: The whole benefit [of the surveys] is you are asking yourself the questions and reflecting, which is something people should do anyways.

Participant 1813: I think the best part of the study is it puts it [substance use] in your consciousness. It makes you think about substance use like you wouldn't normally, so it's an easy way to keep it on your mind.

Participant 1819: It's a reminder to myself to think back on my day-to-day behaviors. It gives me an opportunity to think about myself.

Participant 1822: It [self-monitoring] helps keep me on track of where I am at the week. It's every Monday and Friday, I have to look at my cell phone of how many times I used. It's a memory game of taking care of myself. I like it though.

Participant 1820: Can't believe I said 6 days anxious!.... I do think it has to do with marijuana to a degree, because the day I was anxious or depressed, I didn't feel like doing anything. It must have been after my birthday, so I felt tired from excessive use.

Self-Monitoring with Coaching to Support Motivation

Participant 1819: The twice-weekly texting was my motivation to continue in the study because it's convenient and the questions are easy to read. Also the coaching calls. I can really just talk about anything without feeling judged, which is important to me. I like the way you [the coach] communicate with me. I appreciate it. It makes me feel safe.

Participant 1801: The whole interaction made me feel like I'm not alone.

Timing and Frequency of Self-Monitoring Surveys

Twice-weekly for first 6 weeks, weekly for weeks 6-12

Participant 1801: I think once weekly wasn't enough. I would forget completely about the study.

Participant 1814: I think it's just right. Checking on me after a weekend and before.

Participant 1810: I like that that they [surveys] are consistent. Same time on same day. It didn't come out on the blue. When I don't get it when I'm driving. I like the sign off message. Sometimes it seems if the survey just ended. Officially having sign off question to know that I finished.

Participant 1819: Twice-weekly is better than once-weekly. You have nuances, like your mood, that happen in the week that may not be clearly remembered after a full week. It's hard to give accurate answers.

Thoughts on doing surveys once a month after second coaching session

Participant 1805: Once a week. In my case, I need someone to be coaching me. Seeing that I am doing okay. I am following goals I have. Because I may forget or lose interest, but I see that you are trying to help me by calling and sending text message that would be better for me.

Participant 1811: Once a week is okay. Thinking back on 30 days would be hard to remember. My answers would be less accurate, kind of like guesstimating

Thoughts on doing surveys daily for first two weeks

Participant 1804: It's overkill, but if you did it for the first 2 weeks it depends on the person. For example, if someone that has a bigger problem with Christina [methamphetamine] might need it more frequently

Participant 1805: That could be a lot. It depends on people's usage. If someone is trying to quit that could be helpful. If contemplative on quitting that could be overwhelming. Also, if they are not using. I think the first two week are better.

Participant 1819: Every day is only okay if you limit the questions to 2 or 3. Any more than 5 is too much for every day.