



Young adults' perceptions of acceptability and effectiveness of a text message-delivered treatment for cannabis use disorder



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ABSTRACT

Objective: This study collected in-depth treatment satisfaction and effectiveness data to provide insight into the mechanisms of behavior change and to identify aspects of a text message-delivered treatment for cannabis use disorder that could be improved.

Methods: Data were collected via a web-based survey from 30 young adults (ages 18–25) who were recent participants in a randomized controlled trial of Peer Network Counseling-txt (PNC-txt), a text message treatment for cannabis use disorder. The survey assessed reactions to the text-delivered treatment, changes in cannabis use, reactions to the peer-focused components, and feedback about improvements to the treatment.

Results: Nearly all (93%) respondents found PNC-txt to be helpful to their treatment. The majority of the sample (63%) reported that PNC-txt heightened awareness of their cannabis use, and 40% reported a better understanding of problematic use. Fifty percent reported that they use less cannabis than they did prior to the intervention. Seventy percent of respondents stated that it was helpful to answer questions about their close friend group and nearly one-quarter of participants decreased the amount of time spent with “unhealthy” friends.

Approximately 85% indicated that thinking about their peer network helped them meet goals of stopping, reducing, or better managing their cannabis use.

Conclusions: These findings provide insight into the acceptability of the text-delivered treatment platform and potential mechanisms of behavior change for PNC-txt. The participants provided positive feedback about the treatment and indicated that it helped reduce their cannabis use.

Given the acceptability and promising efficacy of PNC-txt, continued research is warranted, particularly with adolescents and with larger samples.

A small, but growing literature has focused on using text-based interventions to address adolescent and young adult substance use issues. Tofghi, Nicholson, Mcneely, Muench, and Lee (2017) conducted a systematic review of mobile phone messaging for illicit drug and alcohol dependence. Across studies, text-messaging interventions contributed to improved clinical outcomes such as relapse prevention and improvements to motivation, self-efficacy, and social support (Tofghi et al., 2017).

Although most literature targets alcohol and tobacco use, recently more research has targeted cannabis use (Hoch, Preuss, Ferri, & Simon, 2016). A recent study of text-delivered counseling messages to treat cannabis use disorder found the group receiving Peer Network Counseling-txt (PNC-txt) had a greater percentage of negative urine screens for cannabis metabolites, reported fewer problems related to cannabis use, and experienced reductions in cannabis craving compared to the control group (Mason, Zaharakis, Russell, & Childress, 2018).

An important step in the development of successful text-messaging interventions is to identify needs and preferences of potential users in regards to the content, context, and delivery of the intervention treatment (Bock, Heron, Jennings, Magee, & Morrow, 2013). In-depth

examination of responses to treatment satisfaction can lead to a better understanding of the mechanisms of behavior change within an intervention and help to identify how an intervention could be improved (Alessi & Rash, 2017). To our knowledge, there has been only one study that reported feedback from participants involved in text message interventions for cannabis use. Twelve participants described as ‘young’ reported that the text messages increased reflection on their cannabis use, and the repetitive, serial nature of the texts played a significant part in the process of change (Laursen, 2010). Given the sparse literature on treatment satisfaction of text-delivered treatments for cannabis use disorder, more research is warranted to address this issue.

The present study was designed to collect in-depth treatment satisfaction data from a recent text-delivered randomized trial of cannabis use disorder treatment with young adults, named Peer Network Counseling-txt (PNC-txt) (Mason et al., 2018). PNC-txt was adapted from Peer Network Counseling, and is a brief substance use intervention that focuses on peer relations as the primary mechanism for behavioral change. PNC applies Motivational Interviewing (MI) (Miller & Rollnick, 2013) principles within a relational framework to interrupt substance use.

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PNC-txt is described in detail in Mason, Zaharakis, Russell, and Childress (2018).

PNC-txt participants were assessed to identify treatment satisfaction and to examine the mechanisms of behavior change from the participants' perspective. Specifically, we assessed participants' satisfaction with PNC-txt delivery, frequency, and quantity of text messages. We also assessed their perceptions' of treatment effectiveness, understanding of problematic cannabis use, thoughts and behaviors related to peer relationships, and their feedback about potential treatment improvements.

1. Methods

1.1. Recruitment

The institutional review board at the first author's university approved all study procedures. Young adults were recruited from the treatment arm of a recent randomized controlled trial of a text message based intervention for problematic marijuana use (Mason, Zaharakis, Moore, et al., 2018; Mason, Zaharakis, Russell, and Childress, 2018). Fifty of the fifty-one treatment group participants consented to be contacted about future studies and were invited to participate in the current study. One week after the conclusion of the original trial, individuals were emailed study information along with a link to the study website, where additional details were provided prior to obtaining consent. Consenting participants answered a 30-min web-based survey about their treatment experience. Thirty invitees agreed to participate, representing 59% of the original treatment group.

1.2. Measures

1.2.1. Participant characteristics

Individual-level characteristics such as age, gender, race, sexual orientation, parent education, college student status, and family substance abuse history were captured as part of the previously conducted randomized controlled trial.

1.2.2. Treatment satisfaction

Participants were assessed on their experience with PNC-txt with 15 quantitative items and three open-ended items representing various domains of treatment satisfaction. Items included questions about the frequency and timing with which texts were delivered, comprehension, and perceptions of whether or not the messages were applicable.

Participants were assessed about changes in their understanding of problematic cannabis use and about their motivation to enroll into the original treatment study.

1.2.3. Changes in cannabis use

Respondents were presented with sixteen quantitative and three open-ended questions about changes in cannabis use resulting from their participation in PNC-txt. Cannabis use frequency was assessed by the number of days that they used cannabis during the past week. Participants reported if they currently used less, more, or about the same amount of cannabis following treatment.

1.2.4. Peer relations

Participants were assessed about the peer-based component of the PNC- txt and how answering questions about their friends affected thoughts and behaviors about their close peer network and their cannabis use. This section consisted of eight quantitative and eight open-ended items about whether they adjusted the time spent with friends and the locations where they spent their time with friends, and if treatment prompted them to think about their cannabis use in light of their relationships with their close friends.

1.2.5. Suggestions for improvement

We assessed participants' feedback on ways to improve the PNC-txt. Ten dichotomous items were presented to participants, with each representing a yes or no recommendation on a possible change to PNC-txt. Feedback was solicited in an open-ended question allowing participants to provide other suggested enhancements.

1.3. Analytic plan

We employed a primarily quantitative methodology to analyze survey data. This included an analysis of descriptive statistics using IBM SPSS, version 25. In addition, open-ended feedback was summarized to enhance the quantitative results and to provide depth on treatment satisfaction, behavioral, and peer relations domains.

2. Results

2.1. Participant characteristics

The young adults enrolled in this study ranged from 18 to 24 years of age ($M = 20.13$, $SD = 1.87$). Most were Caucasian (80%) college students (93%) with a family history of drug abuse (70%). The sample consisted of 16 female and 14 male participants.

2.2. Test of bias

To test for potential selection bias, participants in the present study were compared to the other PNC-txt participants on several demographic and key variables. Current participants did not differ significantly by ethnicity ($\chi^2[4, N = 101] = 2.16$, $p = .75$), gender ($\chi^2[1, N = 101] = 2.02$, $p = .19$), or age ($t[99] = 0.73$, $p = .47$) when compared to non-participants. There were also no differences in terms of past-30 day cannabis use ($t[99] = 0.52$, $p = .61$) or average daily cannabis use ($t[99] = 0.53$, $p = .60$) as measured at baseline of the PNC pilot. Likewise, there were no differences in intentions to use cannabis in the next 30 days ($\chi^2[3, N = 101] = 2.45$, $p = .55$) at baseline.

2.3. Treatment satisfaction

As shown in Table 1, participants overwhelmingly stated that the PNC-txt treatment was helpful to their cannabis treatment (93%). Nearly all found the text messages easy to understand (96.7%) and the majority agreed that the texts were relevant to their personal cannabis use (53%). Fifteen participants (50%) reported that they went back and re-read texts from earlier in the intervention, and most found that the optional supportive "boost" messages helpful to their treatment (80%). Eighty percent of participants endorsed the number of texts received each day as being the "right amount". Although participants were given the option of receiving text messages at either 6:00 pm or 9:00 pm and most (83%) felt that they were delivered at a good time of the day, one participant felt that an afternoon option would have been better. Participant treatment satisfaction can be summarized with the following response:

"The texts were not pushy at all and very gently suggested ideas to make improvements I want to make. I thought they were effective in really making me consider different factors that influence my habits and ways to reduce smoking."

2.4. Changes in cannabis related cognitions

Almost half of those surveyed indicated that participation in the PNC-txt treatment caused a change in their understanding of problematic cannabis use (40%). Twenty-eight of thirty (93%) participants reported that cannabis use becomes problematic when it affects school

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