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Comparison of brief versus extended personalised feedback in an online intervention for cannabis users: Short-term findings of a randomised trial

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ABSTRACT

Previous studies have shown brief online self-help interventions to be a useful method of treating cannabis use and related problems; however, no studies have compared the effects of brief versus extended feedback for online brief intervention programs.

Objectives: The current study was a two arm randomised trial aimed at testing the short term effectiveness of a brief and extended feedback version of *Grassessment*, a brief online intervention for cannabis users that provides individualised feedback regarding use, motives, and harms.

Methods: Participants ($n = 287$) reporting at least one symptom of DSM IV cannabis abuse or dependence were recruited using online and offline advertising methods. Participants were randomised to receive either a brief or extended feedback version of the *Grassessment* program and were required to complete a one month follow up questionnaire.

Results: One hundred and ninety four participants completed the one month follow up. Wilcoxon analyses showed a significant decrease in past month quantity and frequency of cannabis use ($ps < 0.001$; $r = -0.41$ and -0.40 respectively) and lower severity of dependence scores ($p = 0.002$; $r = -0.31$) among those in the brief feedback condition. Participants in the extended feedback group also demonstrated significant decreases in patterns of use ($ps < 0.002$; $r = -0.39$ and -0.33) but not severity of dependence ($p = 0.09$; $r = 0.18$). A Generalized Estimating Equation (GEE) analysis showed no significant interaction between length of feedback received and past month cannabis use frequency ($p = 0.78$), quantity ($p = 0.73$), or severity of dependence ($p = 0.47$).

Conclusion: This study adds support for the use of brief online self-complete interventions to reduce cannabis use and related problems in the short term. The findings suggest that in the case of the brief online screening and feedback program *Grassessment*, extended feedback does not lead to superior outcomes over brief feedback.

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1. Introduction

Cannabis is the most commonly used illicit substance (United Nations Office on Drugs and Crime, 2015). In the 2013 National Drug Strategy Household Survey, 35% of Australians aged 14 and above reported having ever used cannabis, with 10.2% having used it in the last 12 months (Australian Institute of Health and Welfare, 2014). In Australia, approximately one in 20 (5.1%) people aged 16 to 85 years has a substance use disorder, with cannabis use disorder being the second most commonly diagnosed substance use disorder (Slade et al., 2009). Rates of use and problems are similar for other Western countries (Substance Abuse and Mental Health Services Administration,

2014). Long term and heavy cannabis use adversely affects mental and physical health, cognitive functioning, and educational achievement (Degenhardt, Ferrari, Calabria, Hall, Norman, McGrath, et al., 2013; Fischer, Jeffries, Hall, Room, Goldner and Rehm, 2011; Horwood, Fergusson, Coffey, Patton, Tait, Smart, et al., 2012).

Despite the availability of efficacious treatments for cannabis use disorders, only a minority identify their cannabis use as problematic, let alone seek treatment (Copeland, 2004; Degenhardt, Hall, & Lynskey, 2001; Teesson, Hall, Lynskey, & Degenhardt, 2000). Various barriers inhibit treatment seeking, such as not being aware of treatment options, thinking treatment is unnecessary, wanting to avoid the stigma associated with accessing treatment, concerns about confidentiality, lack of accessibility, and the cost of treatment (Carroll & Rounsaville, 2007; Gates, Copeland, Swift, & Martin, 2012; Kirby, Benishek, Dugosh, & Kerwin, 2006; Trelor, Abelson, Cao, Brener, Kippax, Schultz, et al., 2004). These issues highlight the need for treatments that are affordable

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and easily accessible while maintaining anonymity. Internet interventions have been posited as a means of overcoming these barriers.

A growing literature demonstrates that internet-based interventions reduce anxiety, depression, and substance use (Griffiths & Christensen, 2006; Griffiths, Farrer, & Christensen, 2010; Rooke, Thorsteinsson, Karpin, Copeland, & Allsop, 2010). A meta-analysis including 10 studies of the efficacy of computer-based interventions for cannabis use found that the overall effect size was small, but statistically significant at post-treatment when compared to assessment-only and information-only control conditions (Tait, Spijkerman, & Riper, 2013). Subgroup analyses did not reveal statistically significant differences for age, gender, type of intervention (prevention versus treatment), or guided versus unguided programs. Other computer based treatment programs have reported similar (Budney, Fearer, Walker, Stanger, Thostenson, Grabinski and Bickel, 2011) or better (Kay-Lambkin, Baker, Lewin, & Carr, 2009) cannabis use outcomes compared to therapist delivered interventions. The widely used eTOKE program is an online motivational enhancement intervention that assesses college students' cannabis use and then feeds them back the results. Both brief and extended versions of eTOKE have not been found to decrease cannabis use, problems, or symptoms of dependence among college students (Elliott, Carey, & Venable, 2014). Notably, many participants had forgot doing the program within a month of completing it. Perhaps a more memorable program or a program that does not focus on college students might be more helpful.

1.1. Research objectives

The current study sought to test the short-term effectiveness of brief and extended personalised feedback as part of the online intervention program, *Grassessment*, in reducing cannabis use and dependence severity. *Grassessment* is an online screening program that provides tailored individual feedback, both in real time as participants move through the assessment via infographics, and via a summary screen and email at the completion of the program, which includes links to specialist services.

The primary study hypothesis was that cannabis use and related harms would decrease at the one month follow up for all participants. The secondary hypothesis was that those receiving an extended feedback version would report significantly greater reductions compared to those receiving a brief feedback version.

2. Methods

2.1. Participants

Participants with an expressed desire to reduce or quit their cannabis were recruited via self-selection methods from the general community between 2012 and 2013. To be eligible for inclusion in the study, participants were required to be at least 18 years old, English literate, have an email address due to the nature of the follow up assessment method, and report cannabis use within the last month, as well as at least one symptom of cannabis abuse or dependence (as assessed using 11 substance use items from the Global Appraisal of Individual Needs – Initial (GAIN-I)).

2.2. Procedure

The UNSW Human Research Ethics Committee gave ethical approval for this study. Advertisements seeking participants who wished to reduce or quit their cannabis use were displayed via the National Cannabis Prevention and Information Centre (NCPIC) website, Google, Gumtree, and the mX (a local free commuter magazine) and contained a link to the *Grassessment* program. Screening for eligibility was incorporated within the first section of questions in the program. Participants determined eligible following completion of the online screening section of

Grassessment progressed to the study information page and were asked to provide their consent to continue with the research section of the program. Those who provided consent completed the remainder of *Grassessment* and were randomised to one of two feedback conditions (brief versus extended). One month after completion of the *Grassessment* program participants received an automatically generated email providing a link to the follow up assessment. Participants received up to three reminders, with one sent every five days. Participants received an AU\$30 shopping voucher as reimbursement for their time completing the follow up assessment.

2.3. Intervention

The website *Grassessment: Evaluate Your Use of Cannabis* followed a typical brief motivational enhancement intervention format aimed at reducing participants' use of cannabis by assessing and presenting personalised and normative information. Both demographic and cannabis related assessment information was collected as part of the *Grassessment* program. Participants in both the brief and extended conditions were asked the same series of questions about their demographics and recent cannabis use using the Timeline Followback (TLFB) method (Robinson, Sobell, Sobell, & Leo, 2014; Sobell & Sobell, 1992). This method asked participants to place memorable events from the past month on a calendar to help them recall their cannabis use quantity and frequency for that period. Participants also reported on their top three motives for using cannabis (to increase pleasant feelings and/or to get high; to forget about worries/depression/problems; to fit in or be liked; to expand awareness, to understand things differently, or to enhance creativity; to make a social gathering more fun or to celebrate; to make a physical ailment (other than craving or withdrawal) feel better; to relieve cravings or withdrawal symptoms; to regulate energy or sleep – to feel more awake or get to sleep) and the three main positive and three main negative consequences that occurred from their cannabis use. Participants were also asked about their severity of dependence (5 items), ideal treatment option (1 item), health consequences (9 items) and perceived cannabis norms (1 item). As participants answered each question an infographic was added to one side of the computer screen to build up a picture of the participants cannabis use (see Fig. 1). This occurred for all participants irrespective of their randomised condition. Immediately upon completion of the assessment, these infographics were summarised via text. Fig. 2 provides an example of brief feedback, while Fig. 3 provides an example of extended feedback. The differences between these conditions are summarised in Table 1.

2.4. Outcome measures

Baseline data were taken directly from the *Grassessment* program. Specifically, frequency and quantity of cannabis use was taken from the TLFB (Robinson et al., 2014; Sobell & Sobell, 1992). Three cones or one regular sized joint equalled 1 standard cannabis unit (SCU: or one quarter of a gram) (Norberg, Mackenzie, & Copeland, 2012; van der Pol, Liebrechts, Brunt, van Amsterdam, de Graaf, Korf, et al., 2014). Dependence severity was assessed using the Severity of Dependence Scale (SDS), with scores of three and higher indicating possible dependence for adults (Gossop, Darke, Griffiths, Hando, Powis, Hall and Strang, 1995; Swift, Copeland, & Hall, 1998). At follow up participants repeated the TLFB and SDS. They also completed the Client Satisfaction Questionnaire (CSQ-8) to assess their satisfaction with the online intervention (Larsen, Attkisson, Hargreaves, & Nguyen, 1979). Items were rated on a 4 point scale, with higher ratings indicating higher satisfaction, for example "How would you rate the quality of the screening and feedback tool?" (1 = poor, 4 = excellent). Possible scores range from 8 to 32.

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