Schizophrenia Research 211 (2019) 86–87

Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

Letter to the Editor

Impact of first episode psychosis treatment on heavy cannabis use: Secondary analysis on RAISE-ETP study

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Dear Sirs and Madams,

Cannabis use is associated with increased occurrence of psychotic symptoms (Gage et al., 2016; Hall and Degenhardt, 2008). Up to 60% of patients with a psychotic disorder used cannabis during their first episode of psychosis (FEP) (Myles et al., 2016). Daily cannabis use is associated with FEP and increased risk of psychiatric relapse (Di Forti et al., 2009; Schoeler et al., 2016). The consensus that cannabis plays an important role in FEP occurrence is reflected in the incorporation of treatment component on cannabis use (and other drug use) in FEP treatment programs. Prior FEP studies, however, did not observe cannabis use reduction among patients (Cather et al., 2018; Petersen et al., 2007). For example, a recent study analyzed data from the Recovery After an Initial Schizophrenia Episode-Early Treatment Program (RAISE-ETP) study and did not find group differences in 'lifetime' cannabis use (Cather et al., 2018). Increasing evidence suggests that frequent or heavy cannabis use may be particularly problematic for people with psychosis (Marconi et al., 2016). In this study, we used publicly available data from the RAISE-ETP study, retrieved from the National Institute of Mental Health Data Achieve, to examine the effects of NAVIGATE and community care on heavy cannabis use. We defined heavy cannabis use as using cannabis at least 20 of the last 30 days prior to the monthly assessment. NAVIGATE is a coordinated specialty care treatment program for FEP, and community care treatment is treatment-as-usual determined by on-site clinicians and the availability of site-specific services. We hypothesized that patients randomized to NAVIGATE are less likely to engage in heavy cannabis use during the 24-month trial relative community care patients.

Patients with FEP were recruited to participate in the RAISE-ETP study, a 24-month multi-site cluster randomized trial, to investigate the effect of NAVIGATE. The core elements of NAVIGATE include family education, supported employment and education, personalized medication management, and individual resilience training, which include an optional module focused on alcohol and drug use (e.g., cannabis use). Further details about the RAISE-ETP study design have been reported elsewhere (Kane et al., 2016; Mueser et al., 2018). To study the potential treatment effect on the frequency of cannabis use, measured using a monthly Service Use a Rating Form (SURF) question, a critical decision was made to include only 'current users' of cannabis at baseline (used at least once within the past 30 days). From the original sample of 404 ($n = 223$ from NAVIGATE and $n = 181$ from community care), we identified 132 'current users' of cannabis ($n = 74$ from NAVIGATE and $n = 58$ from community care) based on responses to baseline measures on recent cannabis use using a Structured Clinical Interview for DSM-IV (SCID) question and a baseline SURF question.

At baseline, there was no statistical difference in heavy cannabis use between the number of patients randomized to community care and NAVIGATE ($p = 0.770$) (Table 1. For the occurrence of heavy cannabis use, community care patients had a higher survival rate compared to NAVIGATE patients. Log-log plot show parallel lines for NAVIGATE and community care patients. Cox regression analyses showed that the rate of heavy cannabis use was twice higher among NAVIGATE patients compared to community care patients during the treatment period (HR = 2.0; 95% CI = 1.2, 3.5; $p = 0.012$) (Table 2). The result remained statistically robust after adjusting for baseline heavy cannabis use (HR = 2.0; 95% CI = 1.2, 3.6; $p = 0.010$) and after age at baseline, sex and race/ethnicity (HR = 1.8; 95% CI = 1.0, 3.2; $p = 0.043$).

Contrary to our hypothesis, we found that community care patients were less likely to engage in heavy cannabis use during the 24-month trial period, relative to those in the NAVIGATE condition. The differences in heavy cannabis use might be explained by differences in the two treatment conditions. While NAVIGATE includes a module focused on alcohol and drug use, the module is brief and optional. This approach to drug use treatment may inadequately target drug use in patients with FEP especially among clinicians with heavy focus on NAVIGATE core modules. Also, it is possible that clinicians in the community care condition were more likely to deliver any available treatment for co-occurring cannabis use, including treatments that were not included in the NAVIGATE model. Lastly, caution is necessary when interpreting results due to differential drop out (Rosenheck et al., 2017). We found NAVIGATE patients on average to have a slightly greater number of months of cannabis use during the trial period compared to community care patients. Considering these possibilities, the present study provides initial evidence that coordinated specialty care programs such as NAVIGATE can be better optimized to reduce heavy cannabis use among patients with FEP. The findings that we present in this letter add to the research that has observed inconsistent effects of coordinated specialty care programs on substance use outcomes. The frequent co-occurrence of cannabis use among individuals with FEP and the effects it has on psychosis and other clinical outcomes, suggests the importance

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https://doi.org/10.1016/j.schres.2019.07.014

Table 1
Characteristics of patients by occurrence of heavy cannabis use at baseline and at least one month during the trial period ($n = 132$ first episode psychosis patients with cannabis use at baseline).

Characteristic		Heavy cannabis use at baseline			Heavy cannabis use in at least one month during the trial		
	Total (n = 132)	Yes ($n = 28$)	No ($n = 104$)	*p*-value	Yes ($n = 63$)	No ($n = 69$)	p-Value
Treatment							
NAVIGATE	74	15	59	0.77	33	41	0.42
Community care	58	13	45		30	28	
Age at baseline							
Mean (SD)	23.0 (4.5)	23.6 (4.0)	22.9 (4.6)	0.44	22.5 (4.0)	23.5 (4.9)	0.17
Sex							
Female	20	4	16	0.89	9	11	0.79
Male	112	24	88		54	58	
Race							
NH White	52	11	41	0.79	25	27	0.73
NH Black	52	13	39		25	27	
NH others	6	1	5		4	2	
Hispanics	22	3	19		9	13	

Table 2
Estimated effect of NAVIGATE on heavy cannabis use (use of cannabis at least 20 days in the past 30 days) among patients with first episode psychosis (n = 132).

Treatment	Hazard ratio	95% CI
Community care	*Reference*	–
NAVIGATE[a]	2.01	1.16, 3.48
NAVIGATE[b]	2.05	1.19, 3.56
NAVIGATE[c]	1.81	1.02, 3.22

[a] Unadjusted.
[b] Adjusted for baseline heavy cannabis use.
[c] Adjusted for heavy cannabis use at baseline, age at baseline, sex and ethnic/race self-identification.

of cannabis use a secondary treatment target for FEP interventions. Integrating evidence-based interventions for heavy cannabis use within coordinated specialty care programs might reduce use and prevent adverse negative outcomes related to heavy cannabis use. Additional research is needed to replicate and explain our counter-intuitive study findings.

Contributors

Karl Alcover and Michael McDonell developed the research idea and drafted the manuscript. Oladunni Oluwoye, Liat Kriegel and Sterling McPherson contributed to the design of the study. All authors read and contributed to iterations of the manuscript.

Role of funding source

All authors supported by the National Institute on Alcohol Abuse and Alcoholism, R01AA020248. Oladunni Oluwoye is also supported by the National Institute on Drug Abuse, R25DA035163. The funding source had not role in the study design, analyses, result interpretation, and manuscript submission.

Declaration of Competing Interest

Dr. McPherson has received research funding from the Bristol-Myers Squibb Foundation, Orthopedic Specialty Institute, Ringful Health, and has consulted for Consistent Care company. No disclosures from any other author.

Acknowledgement

This work was supported by the National Institute on Alcohol Abuse and Alcoholism, R01AA020248; National Institute on Drug Abuse, R25DA035163

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