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Factor Structure of the Cannabis Experiences Questionnaire in a First-Episode Psychosis Sample

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Abstract

Aim—The Cannabis Experiences Questionnaire (CEQ) was developed to measure the subjective experiences of cannabis use both during and after intoxication. Despite the need to better understand the nature of the complex and significant relationship between cannabis use and early psychosis, this questionnaire has rarely been used in individuals with first-episode psychosis.

Methods—We conducted a set of factor analyses using CEQ data from 194 first-episode psychosis patients who used cannabis in order to uncover the underlying factor structure of the questionnaire and thus the overarching types of psychological experiences after using cannabis in young people with psychotic disorders.

Results—Our exploratory factor analysis identified four subscales, including: Distortions of Reality and Self-Perception (factor 1), Euphoria Effects (factor 2), Slowing and Amotivational Effects (factor 3), and Anxiety and Paranoia Effects (factor 4).

Conclusions—Elucidating the underlying factor structure of the CEQ in first-episode psychosis samples could help researchers move towards a deeper understanding of the types of experiences associated with cannabis intoxication among young adults with first-episode psychosis and could inform the development of programs designed to reduce use, improve the course of illness, and possibly delay or prevent the onset of psychotic symptoms in those at risk.

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Keywords

Cannabis; Cannabis Experiences Questionnaire; First-Episode Psychosis; Marijuana; Schizophrenia

1. Introduction

A growing body of literature supports significant and complex associations between cannabis use and psychotic disorders. In addition to being one of the most widely abused substances by American youth (US Dept. of Health & Human Services, 2013), both those with established schizophrenia as well as those in the early stages of illness are particularly prone to cannabis abuse (Koskinen et al., 2009). Continued cannabis use has been associated with a number of negative outcomes in individuals with psychotic disorders (Van Os et al., 2002), including increased rates of relapse (Linszen et al., 1994), more frequent hospitalizations, increased symptom severity (Stone et al., 2014), medication non-adherence (Zammit et al., 2008), and poorer psychosocial outcomes (Linszen et al., 1994). Furthermore, accumulating evidence suggests that regular cannabis use independently increases the risk of developing psychotic symptoms in individuals with no previous history of illness (Van Os et al., 2002). This association is even stronger among individuals with a predisposition for psychosis (Van Os et al., 2002). Additionally, cannabis consumption has been shown to independently contribute to an earlier age at onset of psychosis (Compton et al., 2009; Compton & Ramsay, 2009; Kelley et al., 2016; Large et al., 2011; Myles et al., 2012) in those who go on to develop psychotic disorders.

Individuals can experience a wide variety of subjective responses to cannabis intoxication, ranging from euphoria and depersonalization to paranoia and panic. This has been well established in the general population and is presumably true for individuals with psychotic disorders as well. Limited previous qualitative reports exploring the most common motivations for continued cannabis use in patients with psychotic illnesses indicate reasons related to social activities and acceptance, improving mood, reducing negative symptoms and anxiety, relaxation, and getting high (Gómez Pérez et al., 2014; Schofield et al., 2006). Little quantitative research, however, has examined subjective responses to cannabis intoxication among those with psychotic disorders, and very limited research to date has explored the subjective response to cannabis use in those with first-episode psychosis.

Treating cannabis use disorders during the early stages of a psychotic illness is of crucial clinical importance. This early period appears to represent a “critical period” during which comorbid substance abuse is most damaging to illness trajectory and significantly impacts long-term outcome (Birchwood et al., 1998). Early psychosis clinicians are challenged with the task of encouraging cannabis use reduction or abstinence in order to increase the likelihood of a full symptomatic and functional recovery (Zammit et al., 2008). Effective management of comorbid cannabis use disorders requires a thorough understanding of specific domains of effects of cannabis use. For example, patients with predominantly euphoric effects might differ in their patterns or amounts of use from those with predominantly negative effects (e.g., anxiety, paranoia, psychosis-like experiences,

amotivation). Additionally, individuals who experience predominantly euphoric effects might demonstrate unique influences on the course of their illness including differential impacts on symptom severity and medication adherence. Appreciating the many psychological aspects and subjective experiences associated with cannabis use among young people with first-episode psychosis would inform the development of individualized treatment programs designed to reduce use, improve the course of illness, and possibly delay or prevent the onset of psychotic symptoms in those at risk.

The Cannabis Experiences Questionnaire (CEQ) is a 56-item instrument developed to measure subjective experiences to cannabis use both during and after intoxication (Barkus et al., 2006). To date, two factor analyses have been conducted in order to understand the underlying structure of the instrument (and thus the overarching types of responses to cannabis use). Previous samples have consisted of healthy individuals in the United Kingdom as well as those with schizotypy who are considered to be prone to psychotic experiences. Initial exploratory factor analysis using a sample of 322 cannabis users suggested a 3-factor solution for the CEQ (Stirling et al., 2008). These were characterized as a *Psychotic-Dysphoric* index (factor 1, 14 items), an *Expansive* index (factor 2, 12 items) and an *Intoxicated* index (factor 3, 9 items). A second exploratory principal components analysis using data from 532 participants who had used cannabis at least once in their lifetime was conducted by Barkus and Lewis (2008). They concluded that a four-component solution better explained their data. These included: *Paranoid-Dysphoric Experiences* (factor 1, 25 items), *Euphoric Experiences* (factor 2, 16 items), *Amotivational After-Effects* (factor 3, 7 items) and *Psychosis-Like After-Effects* (factor 4, 5 items).

One prior factor analysis was conducted in a sample of 252 first-episode psychosis participants using a modified version of the CEQ (Bianconi et al., 2016). Contrary to the original version (Barkus et al., 2006), which included 56 experiences, the modified version included only 14 items. A principal components analysis identified a four-factor solution: *Anxiety–Paranoid* (factor 1, 4 items), *Cognitive Experiences* (factor 2, 3 items), *Enjoyable Experiences* (factor 3, 3 items), and *Psychotic Experiences* (factor 4, 3 items).

Despite the need to better understand the nature of the complex relationship between cannabis use and early psychosis, to date the CEQ has very rarely been studied in individuals with first-episode psychosis. Elucidating the underlying factor structure of the CEQ in first-episode psychosis samples would help researchers move towards a deeper understanding of the types of psychological experiences associated with cannabis use among young people with psychotic disorders and could inform the development of programs designed to reduce use, improve the course of illness, and possibly delay or prevent the onset of psychotic symptoms in those at risk. In this study, we conducted a set of factor analyses using CEQ data from a relatively large sample of first-episode psychosis patients.

2. Methods

2.1. Setting and Sample

Data for this analysis were collected as part of an overarching study investigating the impact of premorbid cannabis use on first-episode non-affective psychotic disorders (Kelley et al.,

2016). Study participants were a largely homogeneous sample of inpatients receiving treatment for a newly diagnosed primary psychotic disorder. Eligible individuals were 18–40 years old, were English-speaking, and had a newly diagnosed schizophrenia-spectrum disorder confirmed using the *Structured Clinical Interview for DSM-IV Axis I Disorders* (First et al., 1995). Exclusion criteria included hospitalization for psychosis >3 months prior to the index admission, a history of taking antipsychotic medications for >3 months, known or suspected mental retardation, a Mini Mental State Examination (Cockrell & Folstein, 1988) score <24, or inability to give informed consent for any reason.

Some 247 participants were recruited in two cities in the United States between August, 2008 and April, 2012. Subjects were enrolled at an urban, public-sector hospital (n=161), a suburban crisis stabilization unit (n=42), and a state psychiatric hospital that accepts acute admissions (n=22) in Atlanta, Georgia. At a secondary location (Washington, D.C.) established late in the course of the study, individuals were recruited from a private university-affiliated hospital (n=8) and two urban community hospitals (n=14). Participants provided written informed consent after receiving a complete description of the study and before beginning data collection. All relevant Institutional Review Boards reviewed and approved the study and consent processes.

2.2. Procedures

The assessment for the larger study required approximately six hours to complete and was typically administered over the course of two days during the participant's hospitalization. Diagnoses of a schizophrenia-spectrum disorder and any comorbid substance use disorders were confirmed using the psychotic, mood, and substance use disorder modules of the SCID. The CEQ was administered on the second day of the assessment. Because of illiteracy among some participants, interviewers read all CEQ items and response choices to participants (while providing a large-font cue card in front of the participant, which showed all response options) and recorded their answers.

2.3. Data Analyses

The analysis of the 56 items of the CEQ began with the testing of the two previously reported full-scale CEQ factor structures described above (Barkus & Lewis, 2008; Stirling et al., 2008), using confirmatory factor analysis (CFA) techniques. Goodness-of-fit statistics, including the chi-square, root mean square error of approximation (RMSEA), comparative fit index (CFI), and Akaike information criterion (AIC), were estimated for both CFA models. Generally acceptable values that indicate good model fit for these statistics are: a non-significant chi-square test; RMSEA ≤0.06; and CFI ≥0.90. The AIC is used to compare models, with lower AIC values being preferred.

Since neither CFA model had an acceptable fit, as described below, we next ran an exploratory factor analysis, again using all 56 items of the CEQ. Principal axis factoring with an oblique rotation, allowing factors to correlate, was conducted. Three models were examined.

The final model was then derived, and subscales computed, using the following conventions: (1) items were considered to load onto a factor when the loading was ≥.40, (2) items loading

onto no factors at ≥.40 were not included in the final derived subscales, and (3) subscales were retained if Cronbach's α values were acceptable. Factors were named based on their item compositions.

3. Results

3.1. Description of the Study Sample

Among the 247 hospitalized first-episode psychosis patients, 194 were included in our analyses as we restricted the sample only to those who responded "yes" to cannabis use and reported using >5 joints in their lifetime. As shown in Table 1, the majority of the study sample was male (79.9%), African American (89.2%), single and never married (85.6%). Most (66.0%) lived with parents or other family members and were unemployed (70.1%) in the month before hospitalization. The mean age of the sample was 23.6±4.5 years, the mean years of educational attainment was 11.7±2.2, and the mean age at onset of psychosis was 21.5±4.9. The mean age at first hospital admission was 23.9±4.8, and the mean length of stay for the index hospitalization was 8.9±5.2 days (median, 8.0; range, 0–29).

Diagnoses, based on the SCID, were as follows: schizophrenia, 86 (44.3%); schizophreniform disorder, 50 (25.8%); psychotic disorder not otherwise specified, 29 (14.9%); schizoaffective disorder, 25 (12.9%); and other primary psychotic disorders including delusional disorder and brief psychotic disorder, 4 (2.1%). Sixty participants (30.9%) presented with a co-occurring alcohol use disorder and 39 (20.1%) with cocaine or other substance use disorder (not including cannabis use disorder; see below). At the time of assessment, the sample scored 46.4 ± 9.0 on the PANSS general psychopathology score, 24.4 ± 5.2 on the PANSS positive symptom score, and 22.5± 6.5 on the PANSS negative symptom score (Table 1).

As shown in Table 2, 73 (39.7%) met criteria for current cannabis dependence; 25 (13.5%) for dependence within the past 5 years; 24 (13.0%) for current cannabis abuse; 15 (8.2%) for abuse within the past 5 years and 47 (25.5%) did not meet criteria for a cannabis related diagnosis. Most subjects (142; 73.6%) smoked daily and had their first exposure at a mean age of 14.8±2.6 years. Twenty eight subjects (14.5%) smoked with a frequency of less than one joint per week and reported a mean age at initiation of cannabis use of 18.0 ± 4.5 years. Twenty three subjects (11.9%) smoked more than once a week but not a daily with a mean age at initiation of 16.0±2.8 years.

3.2. Confirmatory Factor Analysis Results

The CFAs based on the Stirling et al. (2008) and the Barkus and Lewis (2008) reports were fit. Neither model fit the data within acceptable levels. Goodness-of-fit statistics for both CFA models are given in Table 3.

3.3. Exploratory Factor Analysis Results

Using all 56 CEQ items, an exploratory factor analysis (EFA) model was fit with an oblique rotation. Models with 3, 4, and 5 factors were further explored to identify underlying factors. In the 3-factor model, three items loaded on more than one factor and eight items did not

load on any factor and were eliminated. The resulting 3-factor model included 45 items. Factor 1 included 19 items (α=0.89), Factor 2 included 16 items (α=0.89), and Factor 3 included 10 items (α=0.85).

For the 5-factor EFA, twelve items did not load on any of the five final rotated factors and one item loaded on more than one factor and so all were eliminated. In the final 5-factor EFA model, Factor 1 included 11 items (α=0.86), Factor 2 included 11 items (α=0.89), Factor 3 included eight items (α=0.82), Factor 4 included six items (α=0.79), and Factor 5 included seven items (α=0.75).

The final 4-factor EFA model provided the best fit. It included 47 items (three items had multiple loadings and six items did not load on any factor), with names given, based on item composition, as follows: Factor 1 (*Distortions of Reality and Self-Perception*) included 18 items (α=0.89), Factor 2 (*Euphoria Effects*) included 16 items (α=0.89), Factor 3 (*Slowing and Amotivational Effects*) included seven items (α=0.81), and Factor 4 (*Anxiety and Paranoia Effects*) included six items (α=0.79). The factor loadings of the final 4-factor model are displayed in Table 4.

Discussion

Our exploratory factor analysis of the CEQ identified four final subscales in this first-episode psychosis sample, including: *Distortions of Reality and Self-Perception, Euphoria Effects, Slowing and Amotivational Effects,* and *Anxiety and Paranoia Effects.* Our derived factor structure differed from those stemming from previous EFAs using different samples (e.g., healthy individuals with varying degrees of schizotypy). The initial EFA conducted by Stirling et al. (2008) identified a 3-factor solution characterized as *Psychotic-Dysphoric, Expansive,* and *Intoxicated.* A second exploratory principal components analysis conducted by Barkus and Lewis (2008) identified a 4-component solution including *Paranoid-Dysphoric Experiences, Euphoric Experiences, Amotivational After-Effects,* and *Psychosis-Like After-Effects.* Our current factor structure using a first-episode psychosis sample identified a second 4-factor solution. Several possible explanations could account for the differences and should be explored. The inconsistency might be best explained by the different populations sampled, ranging from healthy individuals who have smoked cannabis at least once to individuals with schizophrenia who smoked it regularly. Specifically, differences could be related to variations in how cannabis affects healthy individuals as well as those with schizotypy, as opposed to those with emerging or frank psychosis. Furthermore, the difference could be related to the type of cannabis used in the various settings (e.g., the ratio of Δ^9-tetrahydrocannabinol to cannabidiol), impacting the subjective experience of the user. Additionally, differences could possibly be related to British versus U.S. cultural interpretations of certain words in the CEQ. More comparative work needs to be done to understand the underlying latent structure of the CEQ (and thus the underlying latent structure of types of response to cannabis) in different settings and in different samples.

The CEQ was initially developed to enable researchers to identify various psychological effects experienced both while intoxicated with cannabis and for a period of time shortly

thereafter. Its developers first utilized the CEQ to test the hypothesis that cannabis use increases the likelihood of psychosis-like experiences in non-clinical participants with high scores on a measure of schizotypy. Prior to conducting any factor analyses, three subscales were created, including two subscales pertaining to pleasurable and dysphoric “intoxication effects” and one subscale pertaining to “after effects.” Interestingly, while the “after effects” subscale was initially created to be its own distinct subscale, the “after effects” items were dispersed across all four of our subscales rather than comprising a distinct “after effects” subscale.

Several noteworthy limitations should be mentioned. First, our sample consisted primarily of urban, socially disadvantaged, hospitalized, African American patients. This may limit generalizability as the underlying factor structure could vary based on the sample composition, culture, and intensity of cannabis use. Second, our participants did not self-rate the CEQ as was initially intended. Instead, items were read to participants who then provided their response by looking at a cue card showing all response options. It is unclear if the researcher’s presence impacted in any way the participants’ responses. Third, we have no data on the exact type of cannabis consumed by each participant. This may impact an individual’s experience during and after intoxication as different strains can potentially induce different effects; this will need to be further explored.

In order to mitigate the deleterious impact of cannabis misuse on the course of early-stage psychotic disorders, mental health clinicians must gain a deeper appreciation of its psychological and physiological effects. Our data suggest that cannabis use is associated with several distinct types of subjective responses in individuals with first-episode psychosis. More research is needed to further elucidate such responses and their correlates among individuals with psychotic disorders. Future analyses should explore associations between distinct CEQ subscales and various outcome variables including positive and negative symptom scores, rates of hospitalization, and patterns of continued cannabis use.

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Table 1

Sociodemographic and Clinical Characteristics of the Study Sample (n=194)

Gender, male	155 (79.9%)
Age, years	23.6 ± 4.5
Years of education completed	11.7 ± 2.2
Race	
Black or African American	173 (89.2%)
White	14 (7.2 %)
Other	7 (3.6%)
Ethnicity, not Hispanic or Latino	190 (97.9%)
Marital status, single, never married	166 (85.6%)
Living situation prior to hospitalization	
With family	128 (66.0%)
With significant other or friends	27 (14.0%)
Homeless	18 (9.3%)
Alone	12 (6.2%)
Other	9 (4.6%)
Employment status, unemployed	136 (70.1%)
Family history of psychosis (n=177)	29 (16.4%)
Age at onset of psychosis	21.5 ± 4.9
Length of hospital stay	8.9 ±5.2
Diagnosis:	
Schizophrenia	86 (44.3%)
Schizophreniform disorder	50 (25.8)
Psychotic disorder not otherwise specified	29 (14.9%)
Schizoaffective disorder	25 (12.9%)
Delusional disorder	2 (1.0%)
Brief Psychotic disorder	2 (1.0%)
Alcohol use disorder (n=168)	60 (30.9%)
Cocaine/Other substance (non-cannabis) use disorder (n=189)	39 (20.1%)
PANSS general psychopathology score	46.4 ± 9.0
PANSS positive symptom score	24.4 ± 5.2
PANSS negative symptom score	22.5 ± 6.5

Table 2

Cannabis Use-Related Characteristics of the Study Sample (n=193)

Smokes cannabis daily	142 (73.6%)
Age at initiation of cannabis use, years	14.8 ± 2.6
Smokes cannabis weekly but not daily	23 (11.9%)
Age at initiation of cannabis use, years	16.0 ± 2.8
Smokes cannabis less than weekly	28 (14.5%)
Age at initiation of cannabis use, years	18.0 ± 4.5
Cannabis use diagnosis (n=184)	
No diagnosis	47 (25.5%)
Abuse (past 5 years)	15 (8.2%)
Abuse (current)	24 (13.0%)
Dependence (past 5 years)	25 (13.6%)
Dependence (current)	73 (39.7%)

Table 3

Fit Statistics for Confirmatory Factor Analyses (CFAs) among First-Episode Psychosis Patients (n=194)

Model	χ^2	df	RMSEA	AIC	CFI
CFA Model 1 *	1094.33	557	0.07	18877.13	0.78
CFA Model 2 †	2599.46	1318	0.07	28440.37	0.68

*Based on Stirling et al., 2008.[16]

†Based on Barkus and Lewis, 2008.[17]

Table 4

Factor Structure of the 4-Factor Exploratory Factor Analysis (EFA) Model among First-Episode Psychosis Patients (n=194)

CEQ Item #	Question	1	2	3	4
1	How often did you feel happy while smoking marijuana?	−0.12	**0.54**	0.07	−0.18
2	How often did you feel fearful while smoking marijuana?	0.16	−0.04	−0.01	**0.53**
3	How often did you feel like you could sense things (like feel, see, taste or hear them) better than usual while smoking marijuana?	0.18	**0.47**	−0.11	0.06
4	How often did you feel paranoid while smoking marijuana?	0.07	0.04	0.25	**0.62**
5	How often did you feel uncomfortably sleepy while smoking marijuana?				
6	How often did you feel anxious while smoking marijuana?	0.04	0.23	0.02	**0.43**
7	How often did you feel like there was something which you had to do no matter what, or feel compulsive while smoking marijuana?				
8	How often did you feel all powerful, like you could do anything while smoking marijuana?	0.36	**0.43**	−0.28	0.15
9	How often did you believe in something which afterwards you realized was not true while smoking marijuana?	**0.58**	0.13	0.01	0.05
10	How often did you look for excitement while smoking marijuana?	0.14	**0.59**	0.08	0.07
11	How often did you feel threatened by an unknown force while smoking marijuana?				
12	How often did you feel really sleepy or overly tired while smoking marijuana?	−0.19	0.10	**0.53**	0.29
13	How often did you feel sentimental while smoking marijuana?	0.35	0.32	0.08	−0.13
14	How often did you feel energized while smoking marijuana?	0.07	**0.67**	−0.26	0.03
15	How often did you feel nervous while smoking marijuana?	0.14	−0.06	0.29	**0.54**
16	How often did you have your speech become slurred while smoking marijuana?	0.05	0.19	0.31	**0.41**
17	How often did you have the sensation that time had slowed down while smoking marijuana?				
18	How often did you hear voices when there was no one there while smoking marijuana?	**0.43**	0.05	−0.03	0.16
19	How often did you feel powerful or strong while smoking marijuana?	0.25	**0.50**	−0.23	0.17
20	How often did you feel like you were able to understand the world better while smoking marijuana?	0.12	**0.68**	0.00	0.02
21	How often did you feel like you lost your sense of reality while smoking marijuana?				
22	How often did you have visions or visual hallucinations while smoking marijuana?	**0.42**	0.150	−0.07	0.13
23	How often were you afraid that you were going crazy/mad while smoking marijuana?	**0.40**	−0.08	0.11	0.11
24	How often did you feel depressed while smoking marijuana?	**0.50**	−0.16	0.07	0.20
25	How often did you have an increased appetite while smoking marijuana?	−0.08	**0.47**	0.29	0.01
26	How often did you feel obsessive or fixated on something while smoking marijuana?				
27	How often did you feel relaxed while smoking marijuana?	−0.20	**0.61**	0.30	−0.22

CEQ Item #	Question	1	2	3	4
28	How often did you feel like you had no motivation while smoking marijuana?	0.18	−0.12	**0.42**	0.28
29	How often did you feel sleepy while smoking marijuana?	−0.14	0.14	**0.51**	0.19
30	How often did you feel disturbed in your thinking while smoking marijuana?	**0.43**	−0.04	0.29	0.19
31	How often did you feel like you no longer know yourself while smoking marijuana?	**0.59**	−0.14	0.14	0.05
32	How often did you feel laid back while smoking marijuana?				
33	How often did you feel sad while smoking marijuana?	**0.45**	−0.15	0.06	0.01
34	How often did you feel excited while smoking marijuana?	0.05	**0.72**	0.06	−0.08
35	How often did you feel religious while smoking marijuana?	0.32	**0.41**	−0.20	0.01
36	How often did you feel full of plans while smoking marijuana?	−0.07	**0.66**	0.02	0.20
37	How often did you feel super happy while smoking marijuana?	−0.07	**0.72**	0.02	−0.01
38	How often did you feel more creative while smoking marijuana?	−0.14	**0.78**	0.12	−0.06
39	How often did you feel like things were not ‘right’ on your skin while smoking marijuana?	**0.55**	−0.03	0.04	0.08
40	How often did you feel angry while smoking marijuana?	**0.50**	−0.01	−.03	0.12
41	How often did you feel your thoughts speed up while smoking marijuana?	**0.46**	0.37	−0.08	0.10
42	How often did you have an out of body experience while smoking marijuana?	**0.51**	0.20	0.05	0.04
43	How often did you feel full of ideas while smoking marijuana	−0.02	**0.71**	0.06	0.07
44	How often did you feel like you weren’t fully aware of what was going on while smoking marijuana?	**0.44**	−0.09	0.39	−0.01
45	How often did you feel like you could just let go, be freer, or be less inhibited after smoking marijuana?	−0.13	**0.44**	0.10	0.11
46	How often did you feel like you did not want to do anything after smoking marijuana?	0.07	−0.02	**0.66**	0.11
47	How often did you feel like you were generally slowed down, physically, emotionally and in your responses to situations after smoking marijuana?	0.22	0.03	**0.64**	−0.09
48	How often did you feel like you had reduced motivation after smoking marijuana?	0.15	0.00	**0.64**	0.02
49	How often did you feel like you’re thinking had been slowed down after smoking marijuana?				
50	How often did you feel like you were unable to concentrate after smoking marijuana?	**0.57**	−0.13	0.40	−0.06
51	How often did you feel like time had slowed down after smoking marijuana?	**0.41**	0.10	0.34	0.02
52	How often did you feel paranoid without any reason after smoking marijuana?	0.25	−0.12	0.25	**0.46**
53	How often did you feel suspicious without any reason after smoking marijuana?	**0.42**	0.03	0.26	0.30
54	How often did you feel like you were watching yourself from outside your body after smoking marijuana?	**0.56**	0.15	0.02	−0.10
55	How often did you feel like you were unable to remember events after smoking marijuana?	0.22	0.05	**0.54**	0.0
56	How often did you feel like you had less attention after smoking marijuana?	**0.66**	−0.06	0.25	−0.19

1 = Factor 1, *Distortions of Reality and Self-Perception*; 2 = Factor 2, *Euphoria Effects*; 3 = Factor 3, *Slowing and Amotivational Effects*; 4 = Factor 4, *Anxiety and Paranoia Effects*

Bold indicates a factor loading ≥0.40 prompting inclusion of the item in the respective factor in the interpretation of the 4-factor model.

Lighter color indicates loadings on items that were dropped because they did not load ≥0.40 on any factor or loaded highly on more than one factor.