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Medicinal Cannabis Use Among People with Obsessive Compulsive Disorder: Changes in Quality of Life After Three Months

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Abstract: Obsessive–compulsive disorder (OCD) has an estimated prevalence between 1 and 2.3%. Existing treatments may not be suitable or effective for all people with OCD, and there is increasing interest in whether these individuals may benefit from the use of cannabis-based medical products (CBMPs). We document the characteristics of 257 people reporting a diagnosis of OCD within Project T21, a study of medical cannabis patients, and examined whether the use of prescribed cannabinoids improves quality of life. Individuals with OCD were prescribed an average of 2.2 CBMPs, with most products classified as THC-dominant flowers (73.7%). Three months after initiating treatment, there were substantial improvements in quality of life (Cohen’s $d = 0.48$; 95% CI = 0.29–0.65), general health (Cohen’s $d = 0.43$; 95% CI = 0.26–0.61), mood/depression (Cohen’s $d = 0.85$; 95% CI = 0.65–1.04), and sleep (Cohen’s $d = 0.61$; 95% CI = 0.43–0.79). There was a corresponding reduction in anxiety symptoms among the subsample who completed the GAD-7 (Cohen’s $d = 1.14$; 95% CI = 0.84–1.44). Eight individuals (5.7%) reported a total of 14 adverse effects, with the majority of these (57%) being described as mild. Given emerging evidence that those with OCD can benefit from CBMPs, coupled with the increased availability of these unlicensed products internationally, there is a need for more research, including clinical trials, to identify those who may benefit most from the use of these medicines.

Keywords: obsessive–compulsive disorder (OCD); cannabis-based medical products (CBMPs); Project Twenty21 (T21); real-world evidence (RWE)



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1. Introduction

Obsessive–compulsive disorder (OCD) has an estimated lifetime prevalence between 1 and 2.3% [1,2] and is associated with considerable worldwide disability [3,4], while in the UK, the annual economic costs of this disorder have been estimated to be in excess of GBP 5 billion [5].

There are several treatments, including both pharmacological treatments [6,7] and cognitive behavioural therapy [8–10], that are efficacious in OCD [11]. Despite this, it has been estimated that only 40% of those with OCD seek treatment [12], while substantial proportions of those seeking treatment do not experience benefits from that treatment [8,13]. Given this, there has been ongoing interest in developing and providing greater access to new treatment approaches, including combination therapies [11], deep brain stimulation [14], transcranial magnetic stimulation [15], and medicinal cannabis [16–18].

In particular, there is growing interest in whether medicinal cannabis, which is increasingly available worldwide, may ameliorate symptoms of OCD. While the research literature is relatively sparse, and there appears to have been no randomised controlled trials of medicinal cannabis to treat chronic OCD symptomatology, there are converging lines of evidence suggesting that cannabis may alleviate these symptoms:

1. Biological basis. Brain regions implicated in OCD and other anxiety disorders, including the basal ganglia, cerebellum, hippocampus, prefrontal cortex, and amygdala, have been identified as having high densities of the endocannabinoid CB1R receptors, indicating endocannabinoid system activity in these OCD-related brain regions [19,20]. Thus, there is suggestive evidence that endocannabinoid activity may be linked to risks of OCD and other anxiety disorders.
2. Surveys of cannabis users. Multiple surveys have reported higher rates of cannabis use among people meeting the criteria for OCD, which has been interpreted as possibly indicating that cannabis is used to self-medicate OCD symptomatology [21], while an internet-based survey of people using cannabis to treat OCD reported that the majority of respondents perceived reductions in obsessions (68.3%) and compulsions (65.4%) [17].
3. A recent observational study highlighted that inhaled cannabis reduced the severity of compulsions by 60%, anxiety by 52%, and intrusions by 49%. Furthermore, higher levels of CBD and higher doses were predictive of larger reductions in compulsion severity [22].
4. Case reports. There have been multiple case reports documenting reductions in OCD symptomatology in patients receiving licensed cannabis products: three individuals who were prescribed dronabinol [23] and another who received Bedrocan [18].

Despite only limited evidence to support the use of cannabis to treat OCD (or other disorders), an increasing number of jurisdictions have legalised the medicinal use of cannabis. In the UK, prescribed medical cannabis has been legal since 2018, and it has been estimated that in the region of 50,000 people in the UK receive CBMPs via prescription, while a growing number of other countries also report large numbers of people legally accessing medicinal cannabis, including the US, Canada, Australia, and Germany. The widespread use of legal, prescribed cannabis offers opportunities to study the safety and effectiveness of these medications in real-world settings. In this paper, we report on the characteristics of people diagnosed with OCD seeking treatment with CBMPs in the UK and three-month changes in measures of quality of life.

2. Method

2.1. Project T21

Launched in August 2020, Project Twenty21 (<https://www.drugscience.org.uk/t21/> accessed on 6 June 2025) aimed to develop real-world evidence on the effectiveness and safety of medical cannabis [24,25]. T21 was a multi-centre, prospective, observational patient registry of real-world data from patients being prescribed medical cannabis for a variety of conditions. Patients entered into the registry were followed at three monthly intervals.

2.2. Recruitment Strategy and Consent

All patients who received a prescription for CBMPs from one of the 13 UK clinics affiliated with T21 were eligible to participate in the registry. There were no inclusion or exclusion criteria specifically for participation in the registry; decisions about the suitability of CBMPs for a specific individual were entirely the responsibility of the treating physician,

but all those receiving a prescription were invited to join the registry. All individuals agreeing to participate in the registry provided written consent.

Prescribers partnering with T21 have access to a formulary that contains a range of CBMPs, including oils and flowers of differing cannabidiol and THC concentrations. However, there are no restrictions on what products can be prescribed, and products from outside the formulary are also prescribed.

Between the start of the project (August 2020) and 31 August 2024, a total of 4751 individuals had contributed data to T21. During the first phase of the project, patients were recruited if they were seeking treatment for seven broad categories of primary condition: anxiety disorders, including OCD, chronic pain, multiple sclerosis, post-traumatic stress disorder, Tourette's syndrome, epilepsy, and substance use disorder. However, from February 2022, all patients receiving a prescription of CBMPs were eligible to participate in the registry, regardless of their primary condition. Confirmation was obtained from their GPs.

2.3. Measures

As part of their clinical assessment, in addition to providing information on their medical history, including past and current treatments, patients completed structured assessments of symptomatology. The measures used in the current analyses are described below.

2.3.1. Primary Diagnosis

Patients reported over 50 primary medical conditions, and these were classified into four broad categories: chronic pain (e.g., arthritis, fibromyalgia), psychiatric disorders (e.g., anxiety disorders, post-traumatic stress disorder, neurological conditions (e.g., epilepsy, multiple sclerosis), and other conditions.

2.3.2. Secondary Conditions

In addition to their primary diagnosis, participants were asked to identify additional conditions that they had been diagnosed with. Responses from these items were used as follows:

- (A) To identify who, regardless of their primary condition, reported a secondary condition of OCD.
- (B) To calculate an index of multi-morbidity representing the total number of conditions that the individuals reported being diagnosed with.

2.4. Patient Characteristics

2.4.1. Gender

Self-reported gender was coded as male, female, or non-binary.

2.4.2. Age

Age at the Time of Initiation at Treatment, Expressed in Years.

2.4.3. Self-Reported Health

Participants completed a series of self-report measures assessing aspects of health and quality of life. These measures were based on widely used and well-validated assessments. A full description of the measures used and their psychometric properties in the current sample has been provided previously [24]. In the current analyses, we examine the following:

- A. Quality of life was assessed using the five items of the EQ-5d-5L [26]. In the current analyses, these items were summed to form a utility-adjusted index based on normative judgements from the English general population [27].
- B. General health was assessed using the visual analogue scale (VAS) of the EQ-5d-5L [26].
- C. Mood/depression was assessed using the PHQ-9 [28].
- D. Sleep quality was assessed using four items derived from the Pittsburgh Sleep Quality Index [29].
- E. Symptoms of anxiety. In a subsample of participants who reported an anxiety disorder as their primary reason for seeking treatment with CBMPs, anxiety symptoms were assessed using the GAD-7 [30].

2.5. Medical Cannabis Products

Patients self-report information on the number and specific CBMP products that were prescribed. We report information on the number of products prescribed for each participant. Further, we report the total number of different products prescribed to all participants and classify these according to their form (oil vs. flower) and relative THC and CBD ratios (CBD-dominant, balanced, and THC-dominant). The percentage of prescriptions falling into each of these six categories is reported.

2.6. Statistical Analysis

First, we test whether mean ratings of quality of life, general health, mood/depression, and sleep quality vary between those reporting OCD as a primary or secondary condition using independent *t*-tests. Subsequent analyses compare changes in these measures of health and wellbeing between starting treatment and three-month follow-up using a paired sample *t*-test. Estimates of the magnitude of change between treatment entry and three-month follow-up were assessed using Cohen's *d* effect size estimator.

We next describe the types of CBMPs used and document all patient-reported adverse experiences. Finally, we compare baseline characteristics between those who completed the three-month follow-up and those who were lost to follow-up using chi-squared for categorical variables (gender, prior experience with cannabis) and independent sample *t*-tests for continuous measures (age, quality of life, general health, mood/depression, and sleep). Due to missing values on some variables, sample sizes vary between measures. We, therefore, present the sample size for each individual analysis in the tables. Statistical significance was set at 0.05. All analyses were conducted in SPSS version 29.0 (IBM Corp., New York, NY, USA, 2022).

2.7. Ethics

The National Health Service Health Research Authority classifies Project Twenty21 as research; however, based on the Medical Research Council decision tools, Research Ethics Committee review and approval are not required. All individuals did, however, provide signed informed consent for their data to be used for research purposes.

3. Results

3.1. Prevalence of OCD as a Primary or Secondary Condition

From a sample of 4751, 17 (0.4%) reported OCD as their primary condition and reason for seeking prescription cannabis, while a further 240 (5.1%) who were seeking CBMPs for the treatment of other conditions reported that they had also been diagnosed with OCD. Those reporting OCD as a secondary condition reported a range of primary conditions, including other anxiety disorders (38.7%), other psychiatric conditions (18.8%), chronic pain (28.3%), neurological (10.0%), and other conditions (4.2%).

1. Characteristics of patients reporting OCD as their primary or secondary condition

Table 1 compares sociodemographic characteristics, prior experience with cannabis, and mean scores on a range of measures of wellbeing between individuals reporting OCD as their primary reason for seeking CBMPs and those who reported it as a secondary or comorbid condition. These results indicate both similarities and differences between the two groups, in particular the following:

- A. There were no significant differences between the two groups in mean age ($t_{(df = 255)} = 1.1, p > 0.20$ or the percentages identifying as male, female, or non-binary ($\chi^2, 2df = 1.2, p > 50$).
- B. Individuals with OCD as their primary condition reported better general health than those with OCD as a secondary condition on the visual analogue scale of the EQ-5D-5L ($t_{(df = 236)} = 2.2, p = 0.03$).
- C. There were no further significant differences between those with primary and secondary OCD on a range of measures of general wellbeing, including quality of life, mood/depression, and sleep.

Table 1. Comparison of sociodemographic characteristics, cannabis use, and self-reported health and wellbeing between those reporting OCD as their primary condition and those reporting it as comorbid.

	Obsessive–Compulsive Disorder		Test Statistic	p
	Primary	Secondary		
Gender			$\chi^2, 2df = 1.2$	$p > 0.50$
Male (%)	76.5% (13)	65.0% (156)		
Female (%)	23.5% (4)	32.1% (77)		
Non-binary (%)	- (0)	2.9% (7)		
Mean age (years; 95% CI)	35.6 (31.5–39.7) (17)	38.3 (37.1–39.4) (240)	$t_{(df = 255,255)} = 1.1$	$p > 0.20$
Prior cannabis experience (%)	64.7% (11)	62.9% (151)	$\chi^2, 1df = 0.02$	$p > 0.80$
Health and wellbeing (mean, 95% CI)				
Quality of life	0.65 (0.57–0.74) (16)	0.54 (0.50–0.57) (222)	$t_{(df = 236)} = 1.7$	$p > 0.05$
General health	60.8 (52.3–69.4) (16)	49.2 (46.4–51.9) (222)	$t_{(df = 236)} = 2.2$	$p = 0.03$
Mood/depression	16.0 (12.8–19.2) (17)	15.2 (14.3–16.0) (214)	$t_{(df = 229)} = 0.5$	$p > 0.50$
Sleep	12.2 (10.4–14.0) (16)	12.9 (12.4–13.4) (220)	$t_{df = 234} = 0.7$	$p > 0.40$

3.2. Changes in Wellbeing After Three Months of Treatment

Despite minor differences between primary and secondary OCD, preliminary analyses of changes in health and wellbeing after 3 months of treatment indicated no significant differences between primary and secondary OCD in the extent of change between the two assessments. Therefore, data from the two groups were combined to test whether

self-reported health and wellbeing changed after three months of treatment. The results of these analyses, which are based on up to 141 participants for whom complete data were available at both baseline and at 3-month follow-up, are summarised in Table 2:

1. There were significant improvements in quality of life and general health, both assessed using the EQ-5D-5L with effect sizes, which shows consistent improvements across all these measures with effect sizes ranging from 0.43 to 0.65.
2. There were corresponding declines in both depressed mood (Cohen’s $d = 0.85$, 95% CI = 0.65–1.04), assessed using the PHQ-9, and sleep disturbances (Cohen’s $d = 0.61$, 95% CI = 0.43–0.79), assessed using items from the Pittsburgh Sleep Quality Index.
3. Among those with a primary condition related to anxiety (either OCD or another anxiety disorder), there were also substantial reductions in symptoms of anxiety, assessed using the GAD-7 (Cohen’s $d = 1.14$, 95% CI = 0.84–1.44).

Table 2. Three-month changes in health and wellbeing after initiating treatment with medicinal cannabis among people with OCD.

Wellbeing	N	Baseline	3 Months	t(df)	p	Cohen’s d (95% CI)
Quality of life (lower = worse)	141	0.57	0.67	t(df = 140) = -5.66	<0.001	-0.48 (-0.65–-0.29)
General health (lower = worse)	141	50.6	60.2	t(df = 140) = -5.15	<0.001	-0.43 (-0.61–-0.26)
Mood/depression	135	15.2	9.3	t(df = 134) = 7.15	<0.001	0.85 (0.65–1.04)
Sleep/insomnia	141	12.9	10.4	t(df = 140) = 7.23	<0.001	0.61 (0.43–0.79)
Anxiety symptoms						
Anxiety (GAD-7)	69	15.0	8.3	t(df = 68) = 9.49	<0.001	1.14 (0.84–1.44)

3.3. Products Used

Patients reported using an average of 2.2 CBMPs, with 17.5% reporting the use of one product, 57.1% reporting the use of two products, and 25.4% reporting the use of three or more products. The majority (73.7%) of all products used were classified as THC-dominant flowers; 11.9% were balanced flowers; 1.1% were CBD-dominant flowers; 1.4% were THC-dominant oil; 10.4% were balanced oil; and 1.4% were classified as CBD-dominant oil.

3.4. Adverse Events and Side Effects

CBMP-related adverse events were reported by eight (5.7% of those with three-month follow-up data) patients with either a primary or secondary diagnosis of OCD. Together, these individuals reported a total of fourteen AEs, including three reports of anxiety and two reports of increased heart rate, while the following AEs were each reported once: dizziness, dry mouth, fatigue, headache, increased pain, loss of appetite, more frequent bowel movements, paranoia, and too intoxicating. Eight (57%) of these AEs were rated as mild, five (36%) as moderate, and one (headache) as severe.

3.5. Sample Attrition

The sample assessed at three months included 56.4% of those with OCD for whom baseline data were available. This attrition reflected a combination of three factors: (a) termination of treatment, (b) continuation of treatment but non-completion of question-

naires, and (c) enrolment in the study less than three months before the final data collection included in this report. To examine the extent to which those lost to follow-up may have differed from those who followed up at three months, we compared baseline characteristics between these two groups. The results of these analyses are summarised in Table 3, which shows the following:

- (A) Those lost to follow-up did not differ from retained sample members in terms of age or gender.
- (B) Those lost to follow-up did not differ from retained sample members in their use of cannabis prior to starting treatment.
- (C) There were no significant differences between those lost to follow-up and those retained in the sample at 3 months on a range of measures of general wellbeing, including quality of life, general health, mood/depression, and sleep.

Table 3. Comparison of sociodemographic characteristics, cannabis use, and self-reported health and wellbeing between those followed up at three months and those lost to follow-up.

	Completed 3-Month Assessment		Test Statistic	p
	Yes	No		
Gender			$\chi^2, 2df = 1.2$	$p > 0.50$
Male (%)	68.3% (99)	62.5% (70)		
Female (%)	29.7% (43)	33.9% (38)		
Non-binary (%)	2.1% (3)	3.6% (4)		
Mean age (years; 95% CI)	38.4 (36.8–40.0) (145)	37.6 (36.0–39.3) (112)	$t_{(df = 255)} = -0.7$	$p > 0.50$
Prior cannabis experience (%)	66.2% (96)	58.9% (66)	$\chi^2, 1df = 1.4$	$p > 0.20$
Health and wellbeing				
Quality of life	0.57 (0.52–0.61) (141)	0.51 (0.45–0.57) (97)	$t_{(df = 236)} = -1.5$	$p > 0.10$
General health	50.6 (47.2–53.9) (141)	49.0 (44.8–53.3) (97)	$t_{(df = 236)} = -0.6$	$p > 0.50$
Mood/depression	15.2 (14.2–16.3) (135)	15.2 (13.9–16.5) (96)	$t_{(df = 229)} = -0.1$	$p > 0.90$
Sleep	12.9 (12.3–13.5) (141)	12.9 (12.1–13.7) (95)	$t_{(df = 234)} = -0.1$	$p > 0.90$

Together, these results suggest that those retained in the study were broadly similar to those lost to follow-up.

4. Discussion

We identified over 200 patients with a diagnosis of OCD who were receiving CBMPs from private UK clinics. While there were few differences between those reporting OCD as the primary reason for seeking treatment and those who reported it as a secondary condition, both groups experienced substantial improvements in broad measures of quality of life, including QoL, general health, mood/depression, and sleep quality. Among those with a primary anxiety disorder, there were also substantial reductions in measures

of anxiety symptomatology on the GAD-7, with an estimated effect size (Cohen's d) of 1.14 (95% CI = 0.84–1.44). Few adverse events were reported, and the majority of those reported were assessed as mild.

To the best of our knowledge, this is the largest sample of OCD patients receiving access to CBMPs under medical supervision. However, the evidence of quite substantial improvements in quality of life, possibly mediated by a reduction in OCD symptomatology, is consistent with a growing number of case reports and observational research documenting the health benefits of cannabis for people with OCD. As discussed above, while the hypothesised biological basis for findings that cannabis may reduce OCD symptomatology and improve quality of life remains speculative, the current findings point to the potential value of further research to investigate this possibility. Additionally, as Mauzay et al.'s (2021) findings suggest that tolerance—specifically to the effects on intrusions—may develop over time, it is vital to conduct further longitudinal studies to assess how long-lasting the effects are [22]. Despite prescribed cannabis being legal in the UK, there is still considerable stigma associated with its use (see [31]). This stigma may prevent some people with OCD or other conditions that may benefit from the use of prescribed cannabis from seeking such treatment while also compromising quality of life among patients receiving this medication. Despite this, OCD patients in T21 reported experiencing marked improvements in quality of life after commencing treatment with CBMPs.

Strengths and Limitations

There are multiple strengths to this study, including the relatively large sample size relative to previous studies of medicinal cannabis use in OCD, the prospective assessment of outcomes, and the use of widely used and well-validated standardised questionnaires. These strengths must, however, be balanced against several limitations, including the lack of a control group. Additionally, we lacked assessments of OCD-specific symptomatology and duration of illness. Also, despite the relatively large sample, the large number of different products and combinations of products used precluded further exploration of specific products/strains that may be most beneficial, although THC-dominant flowers were the most used strains. An important goal of future research, including both real-world data collection and controlled trials, will be to identify which categories of products are most beneficial for specific conditions, including OCD. While confirmation of the primary condition was obtained by prescribing physicians prior to the patients receiving a prescription, other aspects reported here relied exclusively on patient self-report. Nonetheless, the instruments we used were all based on widely used and well-validated self-report measures, which have been widely used in health research. Further, we have relied on reports of what products were prescribed without obtaining confirmation from other sources, such as biological tests, which are often used in clinical trials. There was also a relatively high level of sample attrition, consistent with what might be expected in real-world observational studies such as this, especially where patients have to pay for their treatment. Nonetheless, our analyses indicated a few differences between those included in our three-month follow-up and those lost to follow-up.

5. Conclusions

Increasing numbers of people are receiving access to unlicensed medicinal cannabis both in the UK and internationally despite relatively little evidence from RCTs supporting the efficacy of these drugs. Given this, real-world evidence, such as that reported here, will become increasingly feasible and should play a greater role in decisions about the safety and utility of CBMPs for treating a range of chronic conditions and in legislating access to these drugs. Despite being potentially available to treat any condition, regulations

surrounding access to CBMPs are restrictive in the UK, relative to many other countries, particularly relative to many US jurisdictions. In particular, all products require MHRA approval and can only be prescribed by specialist doctors after evidence is provided of previous unsuccessful treatment attempts. Additionally, unlike most healthcare in the UK, patients must fund their own treatment despite emerging evidence that cannabis-based medicines may be cost-effective [32,33]. In addition to research assessing which cannabis-based medicines are most likely to be effective for specific conditions, real-world evidence can be used to determine the optimal strategy for providing access to these drugs in an equitable and efficient manner.

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Informed Consent Statement: All participants provided signed informed consent for their data to be used for research purposes.

Data Availability Statement: The data that support the findings of this study are available on reasonable request from the corresponding author. The data are not publicly available as they contain information that could compromise the privacy of research participants.

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