



“I still partly think this is bullshit”: A qualitative analysis of cannabinoid hyperemesis syndrome perceptions among people with chronic cannabis use and cyclic vomiting

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ABSTRACT

Background: Cannabis is the most widely used psychoactive substance in the United States (US), with reported use patterns increasing among adults in recent years. Cannabinoid hyperemesis syndrome (CHS) has been one concern related to increased cannabis use patterns. US emergency departments have reported an increase of CHS cases over the last decade, yet little is known about CHS. This study explores the experiences of people with chronic cannabis use and cyclic vomiting and their perceptions of CHS.

Methods: Semi-structured interviews were conducted with 24 people recruited from a prospective cohort of patients presenting to Rhode Island emergency departments with symptomatic cyclic vomiting and chronic cannabis use. Data were analyzed thematically using NVivo.

Findings: Participants characterized their cyclic vomiting as related to food and alcohol consumption patterns, stress, and existing gastrointestinal issues. Despite recurrent episodes of cyclic vomiting, nausea, and abdominal pain, many participants remained uncertain whether their symptoms were driven by cannabis. Many participants relied on at-home research to assess their symptoms and seek out management approaches. Clinical treatment recommendations focused on cannabis cessation. However, most participants felt clinical recommendations failed to consider the complexity and challenge of stopping cannabis use given the chronicity of use and therapeutic benefits some perceived cannabis to have.

Conclusions: Although cannabis cessation is the only reported CHS cure to date, additional clinical and non-clinical treatment approaches are needed to better support people with chronic cannabis use and cyclic vomiting to meet their ongoing needs.

1. Introduction

Cannabis is the most widely used psychoactive substance in the United States (SAMHSA, 2020). Since the legalization of cannabis across states, the number of adults reporting frequent cannabis use has increased (Cerdá et al., 2019; Compton et al., 2019; Hall and Lynskey, 2020; Spindle et al., 2019). Such changes to the legal landscape of cannabis across states has heightened concerns regarding the impact of increased cannabis accessibility on cannabis use disorders and other adverse health outcomes (Cerdá et al., 2020; Hall and Lynskey, 2020; Simpson, Cho, and Barrington-Trimis, 2021; Spindle, Bonn-Miller, and Vandrey, 2019).

Cannabinoid hyperemesis syndrome (CHS) has been one concern related to increased cannabis consumption patterns. CHS—or severe cyclic vomiting, nausea, and abdominal pain occurring within the context of daily cannabis use (Allen et al., 2004; Wallace et al., 2011)—has increasingly been reported by emergency departments (ED) across the country in the last decade (Dirmyer, 2018; Habboushe et al., 2018; Kim et al., 2015; Wallace et al., 2011). Because of a dearth of outpatient treatment options, the ED is often where people with cyclic vomiting and chronic cannabis use present during an acute symptomatic episode. Despite the increased reports of CHS diagnoses in acute care settings, the root causes and risk factors of CHS remain poorly understood (Sorensen et al., 2017; Wallace et al., 2011). Notably, CHS has similar clinical

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presentations to cyclic vomiting syndromes (Lee et al., 2012; Pareek, Fleisher, Abell, 2007), yet differs in the reported resolution of symptoms following cannabis use cessation (Galli, Sawaya, Friedenber, 2011; Sorensen et al., 2017; Wallace et al., 2011). Because CHS can only be definitively diagnosed following cannabis use cessation and symptom resolution (Galli, Sawaya, Friedenber, 2011; Sorensen et al., 2017; Wallace et al., 2011), symptoms and cannabis use patterns (e.g., chronic cannabis use, length of time using cannabis prior to symptom onset) are often used to diagnosis suspected CHS. Understanding people's lived experiences is critical in order to better support patients presenting in ED settings and improve assessment of health outcomes among people who use cannabis chronically.

While research has documented the therapeutic uses of cannabis for several health conditions (e.g., pain management) (e.g., Haroutounian et al., 2016; (National Academies of Sciences et al., 2017), additional work has underscored the potentially adverse socio-economic and health impacts of chronic cannabis use (Cerdá et al., 2016; Hancox et al., 2010; Hasin, 2018; Hasin et al., 2016; Meier et al., 2016; Metrik et al., 2022; Volkow et al., 2014). Given these variations, research is needed to understand the health and social impacts of recreational and therapeutic cannabis use among people with high-intensity cannabis use.

Although medical cannabis has only been legal in our study setting since 2006, and the legalization of non-medical cannabis use for adults (21 years of age and older) in Rhode Island went into effect December 1, 2022, cannabis has remained highly accessible in our study setting due to street-based markets and the legalization of recreational cannabis in neighboring states. Given the increase in reports of CHS, the aim of this study was to understand how people with chronic cannabis use characterized their experiences with cyclic vomiting and their interactions within the ED setting, including discussions related to CHS.

2. Methods

This study draws on qualitative data collected in Rhode Island between December 2021 and May 2022 to examine cannabis use experiences and CHS perceptions of people with chronic cannabis use and cyclic vomiting. Data were collected as part of a prospective cohort study of patients presenting to the ED with symptomatic cyclic vomiting and chronic cannabis use ($n = 39$) (Wightman et al., Manuscript In Press). Participants were enrolled during their ED visit at one of two study sites in Rhode Island. Individuals presenting in the ED with cyclic vomiting were informed about the study and screened for eligibility by a research assistant. Eligibility criteria included: (1) being at least 18 years of age; (2) able to complete the study in English; (3) having a positive urine toxicology screen for THC during their ED visit; and (4) meeting the study's CHS diagnosis criteria which included a history of chronic daily cannabis use (i.e., more than 20 days per month for one or more years) and experiencing clinical symptoms suggestive of CHS (e.g., severe cyclic vomiting, abdominal pain) that started after using cannabis chronically (Wightman et al., Manuscript In Press). Because participants who were enrolled needed to be symptomatic (e.g., vomiting) and had not ceased cannabis use, a definitive CHS diagnosis could not be made in the ED and was thus not required for this study.

Participants provided written informed consent for all study activities prior to their first study assessment, with ongoing verbal consent continually confirmed during the data collection processes. Participants had the option of participating in the qualitative portion of the study, but it was not required. Of the 39 study participants, 24 participants completed a qualitative interview. All interviews took place between one week and three months after participants' ED visit where they were enrolled in the parent study, with one interview taking place at five months. Participants who completed a qualitative interview were representative of the participants across the full study. Approval for the study was obtained from the Institutional Review Boards at Brown University and Lifespan Hospital.

A total of 24 virtual qualitative interviews were conducted by the

first author, a medical social scientist with expertise in qualitative methods. Interviews were conducted via Zoom or telephone, based on participant preference. All interviews were facilitated using an interview topic guide developed by members of the study team (ABC, RSW) based on the study aims and existing literature. Topics included: cannabis use experiences; symptoms and ED interactions; perceptions and perspectives related to CHS diagnosis, symptoms, and management; and recommendations for treatment and supports. Interviews lasted approximately 30–60 min, were audio-recorded, and transcribed verbatim by a professional transcription company. Participants received \$50 compensation following their interview. To ensure anonymity, all participants were assigned pseudonyms using an online pseudonym generator.

Interview transcripts were imported into NVivo, a qualitative data management and analysis software, and analyzed using a descriptive analysis approach (Creswell, 2009). All transcripts were reviewed by two members of the study team. A preliminary coding framework was developed using a priori codes drawn from the interview guide and emerging themes from the data. The coding framework was further revised to accommodate new codes that emerged during analysis (Creswell, 2009). The research team met regularly during coding and analysis processes to review data, application of codes across the data, and discuss emerging themes. This analysis focused on findings related to participants' experiences of CHS, ED experiences, and perceptions of treatment recommendations and provider interactions, including the ways in which stigma and agency impacted CHS perceptions.

3. Findings

3.1. Participant characteristics

A total of 24 participants were interviewed, all of whom had CHS-like symptoms. Participants averaged 27 years of age (range 19–45 years) (see Table 1). Most participants (88%) used cannabis more than once per day, with most using marijuana (88%) followed by concentrates (13%). Primary methods of cannabis use included blunts (46%), bong (25%), joints (13%), vaporizer (8%), and other (8%). Most participants purchased cannabis from sellers (63%), followed by legal recreational dispensaries (17%), legal medical dispensaries (13%), and other/not reported (8%).

"I'm not sure if it's quite right": Uncertainty about CHS diagnosis.

Many of the participants who had received a suspected CHS diagnosis in the ED were uncertain that they had been accurately diagnosed. Specifically, the lack of comprehensive diagnostic testing, variability, and inconsistency of symptoms, as well as variations in the length of time they had been using cannabis prior to symptom onset, led many participants to question whether CHS was what they were experiencing. Most participants thus framed their CHS diagnosis—or suspected diagnosis—as a way for providers to 'easily' label their symptoms in the ED, underscoring what they characterized as a lack of attention to other potential causes of cyclical vomiting due to limited diagnostic measures. 'Patrick, a 30-year-old white man, described being diagnosed with suspected CHS in the ED:

So it was really just like... 'Do you smoke weed?' And I was like, 'Yes.' Obviously I smoke weed pretty heavily and I'm not gonna lie about it, you know. So I tell them that and once they heard that—I don't know what doctors do for research, and, you know, I'm sure they do their own thing behind the scenes; obviously my blood tests showed THC, but other than that, there was really no diagnosis parameters that I know of other than just asking how much I smoked.

A lack of 'CHS tests' resulted in what most participants described to be providers "put[ting] this label on it" without fully considering patients' lived experiences and medical histories. Importantly, however, several participants described undergoing a range of tests at the ED for their symptoms—often to rule out other potential issues (e.g., cholecystitis)—including blood tests, ultrasounds, CT scans, and EKGs, with a few also

Table 1
Participant demographics (n = 24).

Participant characteristic	n (%)
Age	
Mean	27 (range: 19–45)
Race	
Asian	< 5
White	13 (54%)
Black	9 (38%)
Prefer not to say	< 5
Ethnicity	5 (21%)
Hispanic or Latino/a/x	19 (79%)
Not Hispanic or Latino/a/x	
Gender ¹	
Woman	13 (55%)
Man	10 (41%)
Genderqueer or nonbinary	< 5
Employment type	
Full time	12 (50%)
Part time	7 (29%)
Unemployed	5 (21%)
Highest education level	4 (17%)
Some high school	16 (67%)
High school	3 (12%)
Trade school	1 (4%)
Bachelor's degree	
Frequency of current cannabis use	21 (88%)
More than once per day	1 (4%)
Once per day	1 (4%)
5–6 times per week	1 (4%)
3–4 times per week	
Primary form of cannabis	21 (88%)
Marijuana (flower)	3 (12%)
Concentrates	
Primary method of cannabis use	11 (46%)
Blunt	6 (25%)
Bong	3 (13%)
Joint	2 (8%)
Vaporizer	2 (8%)
Other	
Primary source of cannabis	15 (63%)
Non-dispensary (e.g., from seller)	3 (12%)
Legal medical dispensary	4 (17%)
Legal recreational dispensary	2 (8%)
Other/not reported	

¹Responses are not mutually exclusive.

being referred to gastrointestinal specialists. Despite some being offered these assessments, participants often reported the need for additional tests to fully consider potential underlying issues contributing to their symptoms.

Several participants also drew on instances in which they felt stigmatized in the ED due to their cannabis use and symptoms, which occasionally undermined their belief that their symptoms had been thoroughly assessed by providers. ‘Ellie,’ a 24-year-old white woman described:

They started saying that it was the cannabis symptoms, that everyone was comin' in with the same thing, so it had to be the weed. So they just said that I had it. But I don't [believe it]. [...] Then every time I'd go in they'd be like, 'That's what it is, that's what it is, that's what it is.' They never really heard me and other things that I'm tellin' them... They're like, 'Oh, yeah you smoke weed? You don't care about nothin'.' [...] They're not treating me like if I'm someone sick in the hospital. They look at me like I'm in withdrawal off of drugs and shit.

Other participants echoed these sentiments reporting that because of their cannabis use providers “wouldn't even ask any questions.”

Because little is known about the drivers of, and prevention strategies and treatments for, CHS, participants stressed how researching CHS themselves was imperative. For many participants, this included a mixture of YouTube videos, social media (e.g., Reddit, Facebook groups), and searching for CHS-related articles on Google. In doing so, participants described being able to “confirm that it's CHS because there's

no test or anything” by self-assessing whether their symptoms were related to cannabis and ascertain at-home treatment options to try. One participant explained:

I mean people have brought it [CHS] up to me and I've done my own research, just as far as like what the symptoms are and what people who I guess have been diagnosed with that, how they identify with their symptoms. And I just honestly try to compare it to like how I've felt when I've gotten sick. And I do see some similarities, but I do also see differences as well. So, from my research, I do understand why one would think that that's what I'm going through, but I'm not sure if it's quite it. [‘Tamara,’ a 30-year-old Black woman].

Similarly, ‘Travis,’ a 30-year-old Black man, who was beginning to think he was experiencing CHS explained:

I don't even know the full extent myself. So I'm still looking at YouTube videos and Google information...like, hell, I still partly think that this is bullshit, but I know it's not. So you know what I mean? I mean like, I can't believe I have this other part of me. Well, you know, the shoe fits and you've been in the hospital four times, so something's gotta give, you know?”

Notably, even when participants characterized their cannabis use patterns as potentially contributing to their symptoms, most were still uncertain as to whether they had CHS. One participant explained:

You never know, because it didn't make sense. I ruled everything else out at this point, I mean, so it might be it. You know, it might be my body strangely enough telling me to stop smoking so much weed. ...But I mean certain things that I read about didn't apply in my case. [‘Kevin,’ 34-year-old man].

While some participants felt their experiences were likely non-cannabis based after reading about other peoples' experiences and at-home treatments, others underscored how their own research served as a ‘tipping point’ where they began attributing their symptoms to cannabis use. ‘Ayden,’ a 24-year-old white person explained how information they accessed using an online forum shifted their perception of their symptoms:

I really, really feel strongly about people doing research about it and the CHS subreddit [on Reddit] is a really, really great place for that. Cause it's all people who have CHS or who are like, linked directly to it. Like, the partners of people who have CHS talking about their experiences with it. And I think that was really instrumental in me being like, ok, this is actually the problem and I need to take a break.

“There is no rhyme or reason to it”: Symptom description and perceived triggers.

Many participants were “not 100% convinced that it is just cannabis” causing their medical issues. Specifically, some associated their symptoms with disrupted eating patterns (e.g., skipping meals), food type (e.g., greasy foods, spoiled food), alcohol consumption, pre-existing gastrointestinal issues (e.g., ulcers), and stress. Others, however, thought their symptoms may be a combination of their cannabis use compounding additional medical issues. For these participants, cannabis was often framed as triggering ‘something else’ (e.g., ulcers) which resulted in cyclic vomiting or abdominal pain. One participant explained these challenges:

So I'm like—I don't 100% know what it [CHS] is. Not to say that it isn't affecting me and to say that it isn't what's causing my issues, but I believe that if I have this, it is playing on stomach issues that I've already had in the past, cause I know I have ulcers and everything. But my guess would be that the reaction specifically...is maybe too from smoke, from cannabis getting down into my esophagus and perhaps even weakening things down there. [‘Gavin,’ 26-year-old white man].

However, participants who had longer histories of experiencing chronic nausea, abdominal pain, and/or cyclic vomiting symptoms often reported feeling like their experiences may be cannabis-driven. Among these participants, most still expressed a degree of uncertainty while simultaneously describing having “ruled everything else out” that could be leading to their symptoms (e.g., cutting out alcohol, changing diet). ‘Aaron,’ a 43-year-old white man who had been experiencing cyclic vomiting for about eight years explained:

Yeah, it's crazy, it really is. It seems like there's no rhyme or reason to it.

You could smoke for, you know, three, four weeks, be absolutely fine, and then take a hit one day and then that's it, you're just sick. Or sometimes you don't even take a hit, you just get sick. It's weird. [...] I want to say that stress is a major trigger for me...so if I get bombarded with jobs at work, or who knows, maybe I get a lot of stress that particular day.

While many participants drew attention to a range of factors they felt contributed to their symptoms (e.g., cyclic vomiting, severe stomach pains, chronic nausea), most attributed their symptoms to their eating and hydration patterns, stress or anxiety, or “overdoing” it in relation to how much they were smoking.

While there was some variation in symptoms and perceived causes of cyclic vomiting across participants, most described experiencing intense stomach pains and chronic nausea. Participants highlighted a range of at-home treatments they had tried to relieve their symptoms (e.g., anti-nausea medication, sipping liquids, heating pad, smoking cannabis), with most participants characterizing hot showers or hot baths as the only practice that afforded them temporary relief. ‘Erika,’ a 32-year-old Black woman explained:

If I'm having one of those episodes, you'll find me in the bathtub. I'll fall asleep in the bathroom and that's the only time I'll feel fine is in the bathtub. [...] So the showers help, for sure. ...I do try to do like the Gatorade to have the electrolytes and all that...but I don't find anything that really [helps] that's how I end up going to the hospital. ...If I'm deep in one of those episodes, yeah, there's really no coming back unless I go to the hospital.

Like ‘Erika,’ many participants described how at-home management of symptoms only temporarily relieved symptoms before they needed to go to the ED. One participant explained:

Three days of vomiting, it's just that. It's been the same thing. Like I'll lay there and then when I throw up, it's throwing up every hour on the hour. Like, it's terrible. I thought I was puking up like, blood, or diarrhea this time. That's why I went to hospital. ...I'll just tough it out at the house for two days, then when it's like I can't walk because I can't hold down anything. I'll go to the hospital, I'll tell them, 'Listen, I know this is what it is, I know. I just need a couple bags of IV and I'll be all set.' [‘Luis,’ 40-year-old white man].

“Just stop smoking”: Provider recommendations and treatment approaches.

Participants readily drew attention to their frustration related to provider recommendations to stop using cannabis. For many, the ‘treatment’ recommendation to “just stop smoking” was characterized as discounting the severity of their symptoms and their cannabis use practices. ‘Ayden,’ a 24-year-old white person, explained:

A lot of people were like, 'Well, obviously it's the weed, just stop smoking.' And I was like, 'It's not that simple.' For a lot of people, weed is like, its either like they don't consider it a drug or like they consider it to be non-addictive. But I definitely have like a severe dependency on it. So it wasn't just as simple as not doing [using] it.

Similarly, other participants underscored the challenges of reducing their cannabis use and how this was perceived within ED settings. One participant who had been experiencing her symptoms for several years explained:

It would get me so frustrated because I felt like they wouldn't even ask me any questions. ...Like they didn't ask me how long I'd been having them [stomach pains]. ...I did stop going there [hospital] when I would get sick and I started going to [hospital]. And at [second hospital] they were much better – they would listen. But like at [first hospital] they were pretty rude. They told me I was part of the problem with the health care system, clogging it up, because I wouldn't stop smoking. That's why I stopped going there actually. [‘Kaylee,’ 19-year-old white woman].

Such experiences of stigma further reified feelings of CHS being used to ‘label’ people who use cannabis in clinical settings and challenged some participants’ willingness to modify their cannabis use practices.

Importantly, numerous participants underscored what they viewed to be a range of benefits they experienced from their cannabis use (e.g., mental health management, appetite support, pleasure), which often impacted how they perceived their suspected CHS diagnosis and their willingness to stop using cannabis. In these instances, participants

discussed how cannabis helps “many different issues from anxiety to actual muscle issues,” and thus cannabis was often described as being used instrumentally and helping in ways “regular medicine” (i.e., prescription medications) could not. For several of these participants, the “natural” quality of cannabis and the positive—and at times “profound”—benefits they felt were drawn on to contradict the assumption that their symptoms were an outcome of their cannabis use. One participant explained:

For something that's good, you know, it should make you feel good. That's why I feel like it helps and that's why I feel like it's not weed. Like the issue, the reason why I have this issue isn't weed. [‘Sean,’ 24-year-old Black man].

Like ‘Sean,’ others discussed the therapeutic benefits of cannabis described as helpful in their daily lives, as participants sought to manage mental health conditions. For example, ‘Mikayla,’ a 21-year-old Black woman explained: “*Marijuana's good for me and it helps my ADHD.*” Additionally, many participants framed cannabis as providing a reprieve from the daily stressors they experienced and offering them an opportunity to “relax.” One participant described: “*I enjoy it. It feels like a little break from everything. I'm someone whose mind never stops and I feel like when I smoke, it really slows it down*” (‘Grace,’ 19-year-old white woman). In these instances, participant narratives underscored how cannabis filled a gap in their health management and was viewed as a ‘healthier’ alternative to prescription medications. Such characterizations further illustrate how cannabis use was perceived as therapeutic and affording participants additional agency over their health management, which was challenged through clinician recommendations to “just stop smoking.”

However, some participants sought out ways to reduce their cannabis use or stop using altogether as a way to manage their chronic symptoms. For these participants, they described a shift from feeling like cannabis was “useful” to now characterizing their cannabis use as being more of “a habit.” ‘Vanessa,’ a 23-year-old Black woman, who was hoping to reduce her use explained:

Honestly, as a cannabis user, I wish I never used cannabis because now it's just like—I feel like it's not really fun anymore. Like, I just feel like it's just a habit. [...] I realized how much I use cannabis...and it made me realize like, wow, what am I doing to myself sometimes? You know? Like, what am I really doing? But, like, you know, it's a habit. [...] It would be good [to cut back] because honestly, it's not only impacting me. It's impacting you know, the people that I love.

In reconceptualizing the utility of cannabis, in addition to the chronic symptoms they were experiencing, several participants sought to manage their symptoms through shifting their cannabis use practices. In doing so, participants’ narratives suggest an effort to reassert agency over what they characterized as habitual cannabis use practices while also engaging in self-management of their symptoms.

4. Discussion

Our study examined the experiences of cyclic vomiting among people who use cannabis chronically. Despite recurrent episodes of cyclic vomiting, nausea, and abdominal pain, many participants remained uncertain both about the accuracy of their suspected CHS diagnosis and as to whether their symptoms were driven by cannabis. Importantly, participants identified how treatment recommendations undermined their positive experiences with cannabis and raised concerns about stigmatizing interactions surrounding cannabis use at the ED.

To our knowledge, this is the first study to explore CHS-related perceptions, lived experiences, and treatment interactions of people with chronic cannabis use and cyclic vomiting. In doing so, our findings offer emergent understanding of how people describe their cannabis use and understanding of CHS that can inform clinical interactions. Importantly, while all study participants reported severe symptoms (e.g., abdominal pain, chronic nausea, cyclic vomiting), many participants described using cannabis to address a range of mental health conditions (e.g., stress, anxiety, depression). Previous studies have documented the

potentially therapeutic benefits of cannabis, including pain management and gastrointestinal support (e.g., appetite stimulation, nausea management) (Lucas and Walsh, 2017; Lucas et al., 2015; Reiman, Welty, Solomon, 2017; Walsh et al., 2017; Whiting et al., 2015). Our findings demonstrate how participants largely sought therapeutic benefits of cannabis, most often related to managing their mental health. While there are associations between stress and anxiety use disorders and cyclic vomiting (Lee et al., 2012; Pareek et al., 2007), our findings underscore the need for additional research to examine potential associations between mental health conditions and CHS-like symptoms (e.g., cyclic vomiting syndromes) among individuals with high-intensity cannabis use.

This work illustrates how patient-provider interactions in ED settings can negatively impact individuals' perceptions of their suspected CHS diagnosis. In our study, participants highlighted feeling judged for their cannabis use when in the ED and their narratives highlighted gaps in diagnostic approaches. Although many participants reported undergoing numerous assessments prior to being told they may have CHS, most described suspected CHS diagnoses as occurring too quickly. While current CHS diagnoses typically follow clinical diagnostic criteria (e.g., cannabis use patterns, features of symptoms, and resolution of symptoms with cessation of cannabis use) (Simonetto et al., 2012; Sorensen et al., 2017; Drossman and Hasler, 2016) and often include CT scans, endoscopy, and blood work to rule out other potential drivers (Wallace et al., 2011) over time, our findings underscore the need for more thorough diagnostic (e.g., mental health screens, gastrointestinal history) and treatment approaches, and to better communicate these steps to patients when presenting in the ED. Doing so may not only improve patient experience in ED settings, but also contribute to more positive health outcomes for patients.

Notably, due to limited research on CHS, many participants sought out additional information about symptoms and treatments from online forums and social media. In doing so, participants were able to compare their experiences with that of others to better understand CHS experiences and suggested diagnoses. While this led some participants to believe their experiences were not cannabis-driven, others described such interactions as instrumental for reducing their cannabis use. Prior research has highlighted the role of online forums in community development and supporting individuals as they seek to manage illnesses (Smith-Merry et al., 2019; Wicks et al., 2010). Our findings suggest that similar effects are happening related to CHS. Future research should consider the role of online communities and patient-centered groups at supporting individuals who use cannabis chronically, specifically when seeking to reduce their cannabis use.

The only reported cure to date for CHS is cannabis cessation (Galli, Sawaya, Friedenber, 2011; Sorensen et al., 2017; Wallace et al., 2011). However, our findings illustrate how recommendations to stop using cannabis were often complicated by the ambivalence participants expressed about quitting given perceived benefits from use. Further, the perceived medical and social benefits of cannabis at times contributed to questioning whether cannabis was the driver of their cyclic vomiting experiences. Supplemental treatment modalities for CHS should be explored. For example, evidence-based behavioral treatments (e.g., group therapy, mindfulness approaches) should be included in the clinical recommendations to follow-up care for individuals with chronic cannabis use and mental health conditions who are seeking to reduce their use.

This study has several limitations. First, findings are specific to individuals presenting to the ED during a cyclic vomiting episode in the setting of chronic cannabis use and may not be representative of the experiences of all individuals with chronic cannabis use who experience CHS-like symptoms. Additionally, we did not confirm whether participants had received a CHS diagnosis as this was not a goal of the study. Rather, we aimed to understand participants' perceptions of CHS, including those who had a suggestive CHS diagnosis. Future work should examine CHS perceptions among patients who have received a

diagnosis. Participants were recruited from a single hospital system. Further, participants in this study reported using a range of cannabis products, modes of consumption (e.g., vaping, bong, blunts), and varied in amounts used daily. Additional research is needed to follow participants longitudinally to better assess how different consumption practices may shape experiences, symptom frequency, and ED engagement.

In conclusion, our findings are some of the first to document the experiences of people with chronic cannabis use who have CHS-like symptoms, including their perceptions of suspected CHS diagnoses and treatment recommendations. Given the widespread use of cannabis, additional research is needed to longitudinally assess the experiences of individuals with high-intensity cannabis use and cyclic vomiting. Importantly, improving ED-based communication around suspected CHS and discharge planning is also needed to mitigate confusion for patients. Patient-centered clinical and behavioral supports should also be developed to support patients with suspected CHS.

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CRediT authorship contribution statement

RSW conceptualized and designed the study. ABC is the primary author and collected the data. ABC led the qualitative analysis with analysis and interpretation support from RSW. JM, FLB, and RSW provided feedback and revisions to the manuscript. ABC, FLB, JM and RSW are investigators on the project. RSW acquired funding for the study.

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