Assessment of the effect of cannabis use before partnered sex on women with and without orgasm difficulty

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Abstract

Background: Up to 41% of women face challenges achieving orgasm, a statistic unchanged for 50 years.
Aim: To evaluate the effect of cannabis use before partnered sex on women with and without difficulty achieving orgasm.
Methods: This observational study evaluated responses from female study participants relating to their demographics, sexual activities, mental well-being, cannabis usage, and orgasm-related questions from the Female Sexual Function Index (FSFI).
Outcomes: Outcomes included orgasm frequency, difficulty, and satisfaction related to cannabis use or lack of use before partnered sex, largely based on the FSFI orgasm subscale.
Results: Of the 1037 survey responses, 410 were valid and complete. Twenty-three surveys (5.6% returned) were excluded due to failure to meet the study's criteria. Of the valid surveys, most women (52%, n = 202) reported difficulty achieving orgasm during sexual activity with a partner. These women were primarily between 25 and 34 years of age (45%, n = 91); 75% identified their race as White (n = 152/202); 52% (n = 105) identified as LGBTQI+ (lesbian, gay, bisexual, transgender, queer/questioning, intersex, or other); and 82% (n = 165) were married or in a relationship. Among participants who experienced challenges in achieving orgasm, 72.8% (n = 147, P < .001) reported that cannabis use before partnered sex increased orgasm frequency, 67% stated that it improved orgasm satisfaction (n = 136, P < .001), and 71% indicated that cannabis use made orgasm easier (n = 143, P < .001). The frequency of cannabis use before partnered sex correlated with increased orgasm frequency for women who experienced difficulties achieving orgasm (n = 202, P < .001). The reasons for cannabis use before partnered sex resulted in a more positive orgasm response (n = 202, P = .22).
Clinical Implications: Cannabis may be a treatment for women with difficulty achieving orgasm during partnered sex.
Strengths and Limitations: The researchers examined the challenge of achieving orgasm and considered the covariates reported in the literature, including the FSFI orgasm subscale. The findings may not be generalizable to women who rarely or never use cannabis before sex, women who have never experienced an orgasm, or women who do not have female genitalia. Additionally, the specific type of cannabis used, its chemical composition, the quantity used, and whether or not the partner used cannabis were not assessed in this study.
Conclusion: Cannabis-related treatment appears to provide benefit to women who have female orgasm difficulties or dysfunction.

Keywords: female orgasmic dysfunction; female orgasmic disorder; orgasmic dysfunction; female orgasm difficulty; female sexual dysfunction; cannabis and sex; cannabis and female orgasm.

Introduction

For nearly half a century, researchers have suggested the potential benefits of cannabis in treating female orgasmic dysfunction (FOD) and other sexual maladies.[1–4] Anecdotes and general sexuality research[4–7] suggest that cannabis could treat FOD. This formal investigation focuses on the influence of cannabis on FOD, including medical and recreational usage, regardless of chemical type, dosage, usage timing, and legal status.

FOD is a significant public health concern,[8,9] affecting up to 41% of women worldwide.[10] *ICD-11* classifies the condition as "orgasmic dysfunction." A paucity of treatments exists.[11,12]

Many studies suggest that cannabis can have positive effects on female orgasm,[1,2,5–7] such as enhancing intensity,[1,7,13–16] increasing frequency,[2,4,6,15,17] easing difficulty,[7,13] and improving quality.[2,6,13,15,17,18] Other studies reported possible cannabis inhibition on women's orgasms.[2,14,19] The dosage of cannabis appears to be important, as it exhibits a dose-dependent relationship to enhanced orgasm response.[2,5,20,21] When appropriately dosed, tetrahydrocannabinol (THC), the primary component of cannabis, can reduce anxiety,[22] potentially leading to improved orgasm and satisfaction during sexual encounters.[23] THC reduces activity in the amygdala and hippocampus, parts of the brain that store and react to trauma.[24] THC also inhibits neural activity in the prefrontal cortex,[25] central to high-level cognitive function, reflecting categories, rules, and cognitive control.[26] Does cannabis use before sex increase orgasm frequency, ease, or satisfaction in women who report orgasm difficulty?

Methods

In addressing factors related to FOD during partnered sex, we used the term *difficulty* instead of *dysfunction* to reduce negative connotations and allow participants to express their experiences more freely. Quantitative research based on a within-study design was used in this study to establish a

cause-and-effect relationship and to test the hypothesis that cannabis helps women orgasm who have FOD. The study's survey questions on FOD aligned with the *ICD-11* as "etiological considerations associated with relationship factors" when defining orgasmic dysfunction.[27]

Participants

We invited sexually active women who used cannabis to complete an anonymous uncompensated 41-question survey via Qualtrics software (Supplement 1) distributed from March 24 until November 18, 2022. *Sexually active* was defined as having sex with a partner within the last 30 days, which may have included a range of sexual activities. As outlined in the approved institutional review board application, participants acknowledged informed consent before beginning the survey. News of the opportunity to participate in the study was posted and promoted through social media and postcards. Relevant ID is an assignment to each participant enabled in the survey to flag duplicate surveys.

Participant eligibility was limited to those who were at least 18 years of age who had used cannabis and were involved in partnered sex within the last 30 days. Exclusions included pregnant women, those breastfeeding, and those who had used other recreational substances during the past month. Participants with other sexual issues were not excluded and had an opportunity to elaborate on such issues in the survey. Other exclusions from the analysis included incomplete surveys, surveys that indicated no use of cannabis before sex, and those that failed to indicate if the respondent had female genitalia.

Measures

The FSFI[28] orgasm subscale evaluates orgasm frequency, ease, and satisfaction within the last 30 days, with each question having a slider scale of 5 choices. Orgasm frequency ranged from *almost always to always* to *almost never or never*, orgasm difficulty from *extremely difficult to impossible* to *not difficult*, and orgasm satisfaction from *very satisfied* to *very dissatisfied*. The same 3 questions and slider scale ranges were asked twice: *with cannabis* before partnered sex, followed by *without cannabis* before partnered sex.

The study evaluated demographic factors, relationship satisfaction, cannabis use behaviors, mental health diagnosis, prescription medication, sexual abuse history, and sexual behavior. Statistical tests provided analytic depth and breadth. Table 1 presents the demographic and clinical characteristics of the participants.

Analysis

Data analysis occurred between November 20, 2022, and March 27, 2023. The researchers received 1037 survey responses. Forty percent (n = 417) failed to meet the inclusion criteria, and 210 were excluded for being incomplete, leaving 410 completed surveys. In addition, 23 surveys indicated that participants never used cannabis before sex or did not clearly state their gender. Thus, 94% (N = 387) of completed surveys constituted the primary source of data analyzed.

The grouped responses in reporting *yes* or *no* to the question related to orgasm difficulty during partnered sex determined FOD. Upon evaluation, we moved the responses of 17 women to the category that best reflected their orgasm response without cannabis before partnered sex. For example, we moved a woman's *no* response to orgasm difficulty to the *yes* category

if a respondent stated that she *almost never or never* orgasmed without cannabis before partnered sex. As a result of this objective dichotomization, 52% (n = 202) of the participants were characterized as having FOD.

The study examined 202 women with FOD and all women with and without FOD (N = 387). The study first examined the participants with FOD, and if a statistically significant relationship existed with the use of cannabis before partnered sex, the analysis then turned to all study participants. The only exception to this methodology was for primary intake method, sexual abuse history, and mental health diagnosis. The measurement of these factors was for all women in the study despite the lack of statistical significance found among women with FOD.

The statistical test used in each analysis was based on 2 factors—the level of measurement and the number of treatments—with 3 statistical tests used overall: McNemar, 1-factor analysis of variance (ANOVA), and 1-sample *t*-test. The McNemar test is a nonparametric statistical test for a before-and-after design where a person is one's own control; each has a control and a treatment response. The McNemar test evaluated the paired responses to the FSFI orgasm subscale regarding orgasm frequency, ease, and satisfaction with and without cannabis use before sex.

For orgasm frequency, responses indicating *almost always or always*, *most times*, *sometimes*, and a *few times* were combined to represent *yes* to orgasm, while *almost never or never* represented *no* to orgasm. Among women with FOD (n = 202), responses fell into 4 categories: orgasm with and without cannabis (n = 121), orgasm with cannabis and no orgasm without cannabis (n = 58), no orgasm with cannabis and orgasm without cannabis (n = 7), and no orgasm with or without cannabis (n = 16).

For orgasm difficulty, *extremely difficult or impossible*, *very difficult*, *difficult*, and *slightly difficult* were combined to represent the *difficult* category, while *not difficult* represented the *not difficult* category. Among women with FOD (n = 202), responses fell into 4 categories: difficult with or without cannabis (n = 123), difficult with cannabis and not difficult without cannabis (n = 1), not difficult with cannabis and difficult without cannabis (n = 70), and not difficult with or without cannabis (n = 8). Table 2 represents these data.

For orgasm satisfaction, *very satisfied*, *moderately satisfied*, and *about equally satisfied and dissatisfied* were combined to represent the *satisfied* category, while *moderately dissatisfied* and *very dissatisfied* were combined to represent the *dissatisfied* category. Among women with FOD (n = 202), responses fell into 4 categories: satisfied with or without cannabis (n = 157), satisfied with cannabis and dissatisfied without cannabis (n = 34), dissatisfied with cannabis and satisfied without cannabis (n = 3), and dissatisfied with or without cannabis (n = 8).

A 1-sample *t*-test or 1-factor ANOVA was used when the measurements were independent with different subjects in each of the groups. The FSFI orgasm subscale, demographics, sexual behavior, mental health, and cannabis use behavior were analyzed.

For orgasm frequency, 2 represented *almost always or always* and 6 *almost never or never*. Orgasm frequency responses were grouped by scores 2 to 5 as *yes orgasm* and 6 as *no orgasm* with and without cannabis before sex. The *no cannabis* orgasm frequency score was subtracted from

Table 1. Demographics, sexual behavior, mental health, sexual abuse history, cannabis use behavior, and cannabis effect on orgasm.

Characteristic	Women, No. (%)		P value: cannabis effect on orgasm based on variable	
	With orgasm difficulty	With + without orgasm difficulty	With orgasm difficulty	With + without orgasm difficulty
No.	202	387		
Demographics				
Age, y			.683	—a
18-24	43 (21.3)	76 (19.6)		
25-34	91 (45)	181 (46.8)		
35-44	42 (21)	83 (21.4)		
45-54	17 (8)	28 (7.2)		
55-64	3 (1)	11 (2.8)		
≥65	6 (3)	8 (2.1)		
Education			.704	—
Less than high school diploma or GED	4 (2)	6 (1.6)		
High school diploma or GED	15 (7)	22 (5.7)		
Some college	38 (19)	74 (19.1)		
Associate degree	16 (8)	34 (8.8)		
Bachelor degree	76 (30)	149 (38.5)		
Graduate degree	53 (26)	102 26.4)		
Ethnicity			.437	—
Asian	6 (3)	15 (3.9)		
Black/African American	10 (5)	22 (5.7)		
Hispanic	19 (9)	40 (10.3)		
Multiracial	6 (3)	15 (3.9)		
Native American	3 (1)	4 (0.8)		
Pacific Islander	1 (0)	1 (0.3)		
White/Caucasian	152 (75)	279 (72.1)		
Other	5 (2)	11 (2.8)		
Income, $			.235	—
<20 000	39 (19.3)	62 (16)		
20 000-34 999	24 (11.9)	54 (14)		
35 000-49 999	30 14.9)	54 (16)		
50 000-74 999	49 24.3)	94 24.3)		
75 000-99 999	27 13.4)	55 14.2)		
≥100 000	33 16.3)	68 17.6)		
Relationship status			.141	—
Single	24 (11.9)	45 (11.6)		
Married	67 (33.2)	127 (32.8)		
In a relationship	98 (48.5)	193 (49.9)		
Divorced	13 (5.4)	6 (1.6)		
Other	0	16 (4.1)		
Religion			.889	—
Buddhist	0 (0)	2 (.50)		
Christian (Catholic, Protestant, any denomination)	25 (12.4)	53 (13.7)		
Hindu	1 (.50)	1 (.30)		
Jewish	11 (5.4)	15 (3.9)		
Muslim	0 (0)	2 (.50)		
Sikh	1 (.50)	1 (.30)		
I do not practice a religion	152 (75.2)	296 (76.5)		
Other	12 (5.9)	17 (4.4)		
Sexual orientation: LGBTQI+			.898	—
Yes	105 (52)	192 (49.6)		
No	93 (46)	188 (48.6)		
Sexual behavior and relationship satisfaction				
Masturbation frequency			.620	—
≥1/d	16 (7.9)	31 (8.0)		
2-3/wk	77 (38.1)	136 (35.1)		
4-5/wk	16 (7.9)	33 (8.5)		
Few times per month	62 (45.5)	117 (30.2)		
Once every few months	19 (9.4)	45 (11.6)		
I do not masturbate	12 (.50)	25 (6.5)		
Sexual issues besides orgasm difficulty			—	—
Yes	47 (23.3)	75 (19.4)		
No	155 (76.7)	312 (80.6)		

(Continued)

Table 1. Continued

Characteristic	Women, No. (%)		P value: cannabis effect on orgasm based on variable	
	With orgasm difficulty	With + without orgasm difficulty	With orgasm difficulty	With + without orgasm difficulty
Partnered sex frequency			.541	.617
≥1/d	11 (5.4)	23 (5.9)		
2-3/wk	83 (41.1)	162 (41.9)		
4-5/wk	21 (10.4)	52 (13.4)		
Few times per month	79 (39.1)	139 (35.9)		
Once every few months	8 (4.0)	11 (2.8)		
Relationship satisfaction			.606	—
Very satisfied	100 (49.6)	221 (57.1)		
Moderately satisfied	59 (29.2)	103 (26.6)		
About equally satisfied and dissatisfied	22 (10.9)	32 (8.3)		
Somewhat dissatisfied	15 (7.4)	19 (4.9)		
Very dissatisfied	3 (1.5)	4 (1.0)		
I am not in a partnered relationship	3 (1.5)	8 (2.1)		
Sexual relationship status			.629	—
In a sexual relationship with 1 person <10 y	121 (59.9)	226 (58.4)		
In a sexual relationship with 1 person >10 y	43 (21.3)	87 (22.5)		
Engaging in sex with >1 person	34 (16.8)	66 (17.1)		
Not in a sexual relationship with 1 person	4 (2.0)	8 (2.1)		
Mental health, prescription drug use, sexual abuse history				
Mental health diagnosis			.164	.004*
Yes	129 (63.9)	231 (59.7)		
No	73 (36.1)	156 (40.3)		
Mental health diagnosis type: ≥1 per person			—	—
ADHD	16 (7.9)	31 (8.0)		
Anxiety disorder	95 (47)	172 (44.4)		
Bipolar disorder	12 (5.9)	18 (4.7)		
Depressive disorder	86 (42.6)	147 (38.0)		
Obsessive compulsive disorder	5 (2.5)	8 (2.1)		
PTSD	40 (19.8)	64 (16.5)		
Other	13 (6.4)	24 (6.2)		
Prescription drug use			.232	.114
Yes	123 (60.9)	215 (55.6)		
No	79 (39.1)	172 (44.4)		
Sexual abuse history			.206	.003*
Yes	74 (36.6)	125 (32.3)		
No	128 (63.4)	262 (67.7)		
Cannabis use behavior				
Cannabis use frequency before sex			<.001*	<.001*
Never	0 (0)	0 (0)		
Rarely	20 (9.9)	36 (7.4)		
Some of the time	59 (29.2)	122 (31.5)		
About half the time	36 (17.8)	70 (18.1)		
Most of the time	64 (31.7)	116 (30.0)		
Every time	23 (11.4)	43 (11.1)		
Length of time using cannabis before sex, y			.797	—
<1	40 ((19.8)	65 (16.8)		
1-3	71 (35.1)	144 (37.2)		
>3-5	30 (14.9)	55 (14.2)		
>5	60 (29.7)	122 (31.5)		
I do not use cannabis before partnered sex	1 (.50)	1 (.30)		
Primary intake method			.524	<.0001*
Smoking	100 (49.5)	183 (47.3)		
Vaping oil	33 (16.3)	66 (17.1)		
Vaporizing cannabis flower (weed)	12 (5.9)	26 (6.7)		
Edibles	48 23.8)	95 (24.5)		
Tincture	5 (2.5)	9 (2.3)		
Topicals	1 (.50)	1 (.30)		
Other	3 (1.5)	7 (1.8)		

(Continued)

Table 1. Continued

Characteristic	Women, No. (%)		P value: cannabis effect on orgasm based on variable	
	With orgasm difficulty	With + without orgasm difficulty	With orgasm difficulty	With + without orgasm difficulty
Primary reason for use			.022*	<.001*
Relaxation	127 (62.9)	233 (60.2)		
Sleep	11 (5.4)	33 (8.4)		
Sex	21 (10.4)	37 (9.6)		
Other medical problem	9 (4.5)	19 (4.9)		
Prescription	20 (9.9)	38 (9.8)		
Pain	14 (6.9)	27 (7.0)		

Abbreviations: ADHD, attention-deficit/hyperactivity disorder; LGBTQI+, lesbian, gay, bisexual, transgender, queer/questioning, intersex, or other; PTSD, posttraumatic stress disorder. [a]Dashes indicate that the larger group was not analyzed when the P value was not significant for women with orgasm difficulty, except for mental health, prescription drug use, sexual abuse history, and primary intake method *Statistically significant.

Table 2. Paired FSFI orgasm subscale questions with and without cannabis before sex.

Measure: how calculated	Cannabis used	No cannabis used		χ^2 (P value)[b]
Orgasm frequency: paired orgasm frequency response with and without cannabis before sex		Orgasm	No orgasm	
	Orgasm	121 (59.9)	58 (28.7)	38.5 (<.0001)*
	No orgasm	7 (3.5)	16 (7.0)	
Orgasm ease/difficulty: paired orgasm difficulty response with and without cannabis before sex		Difficult	Not difficult	
	Difficult	123 (60.9)	1 (0.5)	69.01 (<.0001)*
	Not difficult	70 (34.7)	8 (4.0)	
Orgasm satisfaction: paired orgasm satisfaction response with and without cannabis before sex		Satisfied	Dissatisfied	
	Satisfied	157 (77.7)	34 (16.8)	27.68 (<.0001)*
	Dissatisfied	3 (1.4)	8 (4.0)	

Abbreviation: FSFI, Female Sexual Function Index. [a]Data are presented as No. (%). [b]Results per McNemar test: women with female orgasmic dysfunction (n = 202; $df = 1$). *Statistically significant.

the *with cannabis* score for each participant and totaled. A 1-sample *t*-test was performed.

For orgasm difficulty, 2 represented *extremely difficult or impossible* and 6 *not difficult*. Orgasm difficulty responses were grouped by scores 2 to 5 as *difficult* and 6 as *not difficult*. The orgasm difficulty score without cannabis was subtracted from the score with cannabis. One-factor ANOVA was performed.

For orgasm satisfaction, 2 represented *very satisfied*, 4 *about equally satisfied/dissatisfied*, and 6 *very dissatisfied*. Orgasm satisfaction responses were grouped by scores 2 and 3 representing *satisfied*, 4 *about equally satisfied/dissatisfied*, and 5 and 6 *dissatisfied*. The orgasm satisfaction score without cannabis was subtracted from the score with cannabis. One-factor ANOVA was performed.

Demographic data, sexual behavior, mental health, sexual abuse history, and cannabis use behavior were tested with 1-factor ANOVA. The exception was race, which was computed with a 1-sample *t*-test. A score from 2 to 6 was given to each participant's orgasm frequency response with and without cannabis before sex, with 2 representing *almost always or always* and 6 *almost never*. The *no cannabis* score was subtracted from the *with cannabis* score for each participant and computed per the variable.

Results
Orgasm subscale of the FSFI

Of women with FOD (n = 202), 28.7% (n = 58) experienced orgasm with cannabis and no orgasm without cannabis ($\chi^2 = 38.5$, $P < .0001$, McNemar); 34.7% (n = 70) reported

that it was not difficult to orgasm with cannabis and difficult to orgasm without cannabis ($\chi^2 = 69.01$, $P < .001$, McNemar); and 16.8% (n = 34) indicated that they were satisfied with cannabis and dissatisfied without cannabis ($\chi^2 = 27.68$, $P < .0001$, McNemar). Table 2 presents the data.

Orgasm frequency

Orgasm frequency increased 39.8% for women with FOD (n = 202), with 88.8% (n = 179) experiencing orgasm almost always, most times, sometimes, or a few times when using cannabis as compared with 63.3% (n = 128) without cannabis. Women with FOD who almost never or never orgasm decreased 68.9%, with 36.6% (n = 74) almost never or never experiencing orgasm without cannabis as compared with 11.4% (n = 23) with cannabis, Mean difference −1.50 with $t(201) = 14.68$ $P < .0001$ (1-sample t-test). Figure 1 presents the data. Comparative data revealing differences in women's orgasm frequency with and without FOD and with and without cannabis are presented in Figure 2.

Orgasm difficulty

Orgasm difficulty decreased 35.4%, with 61.4% of women with FOD (124/202) reporting that orgasm was slightly difficult, difficult, very difficult, or extremely difficult or impossible with cannabis as compared with 95.1% (n = 192) without cannabis. Women who indicated that it was extremely difficult or impossible decreased 67.4%, with 22.8% (n = 46) finding it extremely difficult or impossible with cannabis vs 7.4% (n = 15) without cannabis, $F(1, 200) = 36.37$, $P < .0001$ (1-factor ANOVA). Figure 3 presents the data.
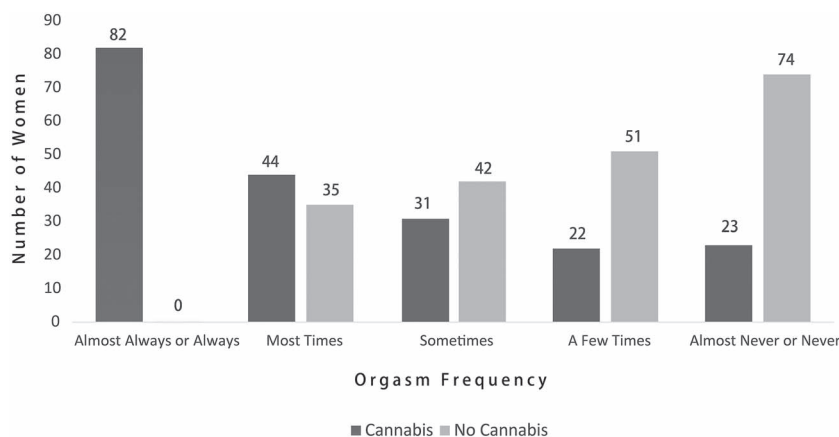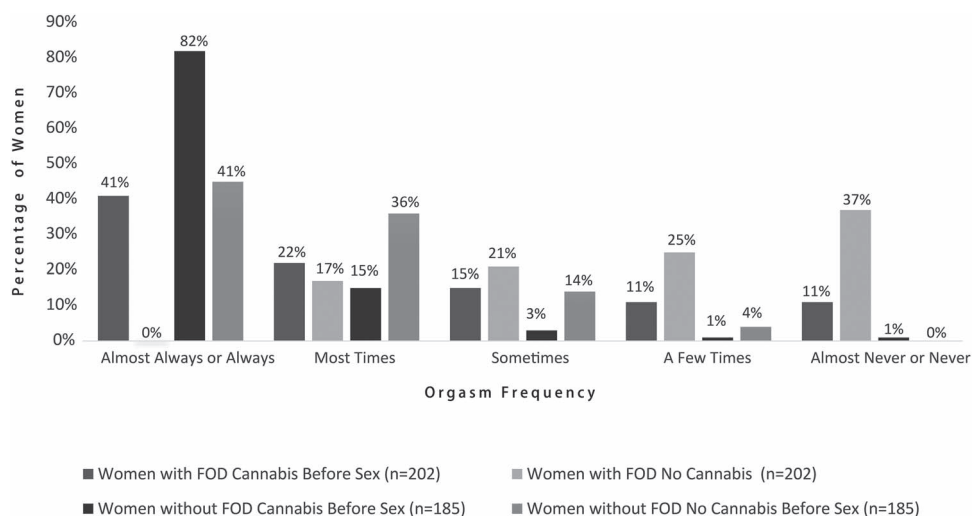
Figure 1. Measures for orgasm frequency during partnered sex for women with orgasm difficulty were fielded from March 23 to November 18, 2022, of women aged at least 18 years who reported orgasm frequency within the last 30 days with and without cannabis use before partnered sex. Orgasm frequency responses after cannabis and no cannabis were given a score from 2 (almost always) to 6 (almost never) for each participant. The difference of each score with cannabis and without cannabis was computed. If there is no cannabis effect, the mean of the scores should be zero. A negative score indicates a negative cannabis effect. The hypothesis that the mean of the differences was zero was tested per the 1-sample *t*-test. The mean difference was −1.50; $t(201) = -14.68$, $P < .0001$.

Figure 2. Measures for orgasm frequency during partnered sex for women with and without orgasm difficulty were fielded from March 23 to November 18, 2022, of women aged at least 18 years who reported orgasm frequency within the last 30 days with and without cannabis use before partnered sex. Respondents were asked, "Over the past month, when you USED cannabis BEFORE partnered sex, how often did you reach orgasm (climax)?" and "Over the past month, when you DID NOT USE cannabis BEFORE partnered sex, how often did you reach orgasm (climax)?" Possible responses included *almost always or always*, *most times (more than 1/2 of the time)*, *sometimes (about 1/2 of the time)*, *a few times*, and *almost never or never*. Comparative data are presented.

Orgasm satisfaction

Orgasm satisfaction increased 97.7%, with 86.1% of women with FOD (174/202) reporting that they were very satisfied, moderately satisfied, or about equally satisfied and dissatisfied with cannabis as compared with 43.6% (n = 88) without cannabis. Women who reported that they were moderately or very dissatisfied decreased 75.4%, with 56.4% (n = 114) being moderately or very dissatisfied without cannabis vs 20.8% (n = 28) with cannabis, $F(2, 199) = 61.88$, $P < .0001$ (1-factor ANOVA). Figure 4 presents the data.

Frequency of cannabis use and length of time using cannabis before sex

The frequency of cannabis use before sex increased orgasm frequency in women with FOD, $F(4, 197) = 5.13$, $P < .001$ (1-factor ANOVA). The largest group of women with FOD

used cannabis most of the time (31.7%, 64/202). Those who responded *almost always or always* orgasmed 47% of the time. Table 1 presents the data.

The duration of a woman's history of using cannabis before sex was not statistically significant for women with FOD, $F(3, 197) = 0.34$, $P = .797$ (1-factor ANOVA). However, this result is relevant because women reported improved orgasm experiences regardless of how many months or years before sex they had used cannabis. The largest group of women (35%, 71/202) used cannabis before sex for 1 to 3 years.

Reasons for cannabis use and intake method

Cannabis reason for use was statistically significant in creating a more positive orgasm characterization for all respondents, $F(5, 381) = 5.81$, $P < .001$ (1-factor ANOVA) and particularly for women with FOD, $F(5, 196) = 2.71$, $P = .022$ (1-factor
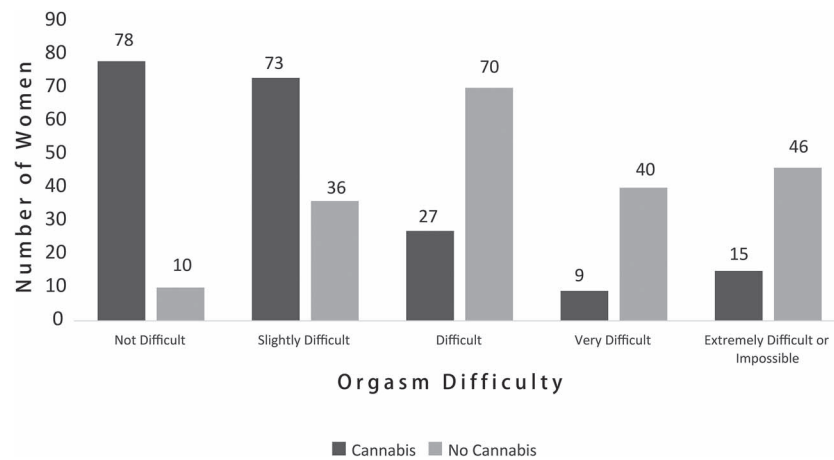
Figure 3. Measures for orgasm difficulty during partnered sex for women with orgasm difficulty were fielded from March 24 to November 18, 2022, of women who reported orgasm difficulty with and without cannabis use before partnered sex. Orgasm difficulty responses were given a score from 2 to 6, with *slightly difficult*, *difficult*, *very difficult*, and *extremely difficult* given a score of 2 to 5 and grouped as *difficult* and *not difficult* given a score of 6. A 1-factor analysis of variance was done to test the hypothesis of no differences among the means between the 2 categories tested. The result was $F(1, 200) = 36.37$, $P < .0001$.
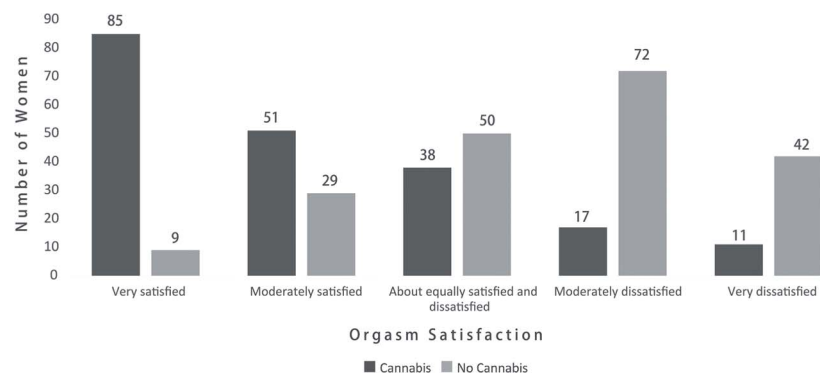
Figure 4. Orgasm satisfaction for women with orgasm difficulty with and without cannabis use before partnered sex. Measures for orgasm satisfaction during partnered sex for women with orgasm difficulty were fielded from March 24 to November 18, 2022, of women aged at least 18 years who reported orgasm satisfaction with and without cannabis use before partnered sex. Orgasm satisfaction responses were given a score from 2 to 6. Scores of 2 (very satisfied) and 3 (moderately satisfied) were combined into 1 category (satisfied; group 1); a score of 4 (about equally satisfied and dissatisfied) stayed the same (group 2); and scores of 5 (moderately dissatisfied) and 6 (very dissatisfied) were combined into 1 category (dissatisfied; group 3). The means are as follows: group 1, –2.0 (n = 136, SD = 1.2); group 2, 0.5 (n = 38, SD = 0.8); group 3, 0.1 (n = 28, SD = 0.7). A 1-factor analysis of variance was done to test the hypothesis of no differences among the means. The result was $F(2, 199) = 61.88$, $P < .0001$.

ANOVA). Survey participants selected from 5 categories when describing their orgasm experience: pain, relaxation, sleep, sex, and other medical problems, including the use of prescription medications. Of the women with FOD, 63% (127/202) reported using cannabis for relaxation.

Smoking was the foremost method of cannabis intake by all study participants (47.2%, 183/387). Among all women, this method of cannabis ingestion was significantly related to a more positive orgasm response, $F(4, 382) = 7.58$, $P < .0001$ (1-factor ANOVA). However, the same could not be said for women with FOD, $F(4, 197) = 0.80$, $P = .524$ (1-factor ANOVA).

FOD and other sexual issues

The majority of women who reported FOD (n = 202) during partnered sex claimed the ability to orgasm in some situations but not others (71%, n = 144), and 77% (n = 155) had no other sexual difficulties. Of the 23% who identified other sexual difficulties, pain during sex was the number 1 sexual complaint. Of women without FOD (n = 185), 85% (n = 157) cited no other sexual challenges. Of the remaining 15%

(n = 28) who reported other sexual challenges, the majority (57%, n = 16) experienced low sexual desire.

Demographics, relationship status, and sexual behavior

When consumed before partnered sex, cannabis had no statistically significant relationship with age, race, income, education, religion, sexual orientation, sexual relationship status, relationship status, relationship satisfaction, sexual orientation, partnered sex frequency, or masturbation frequency. Among women with FOD (n = 202), women aged 25 to 34 years (45%), in a relationship (not married; 48.5%, 98/202), holding a bachelor degree (38%, 76/202), and earning between $50 000 and $75 999 (24%, 49/202) constituted the largest group.

The majority of women with FOD noted their sexual orientation as LGBTQI+ (lesbian, gay, bisexual, transgender, queer/questioning, intersex, or other (52%, n = 105) and their race as White (75%, n = 152), expressed being very satisfied in their partnered relationship (49.5%, n = 100) with 1 person
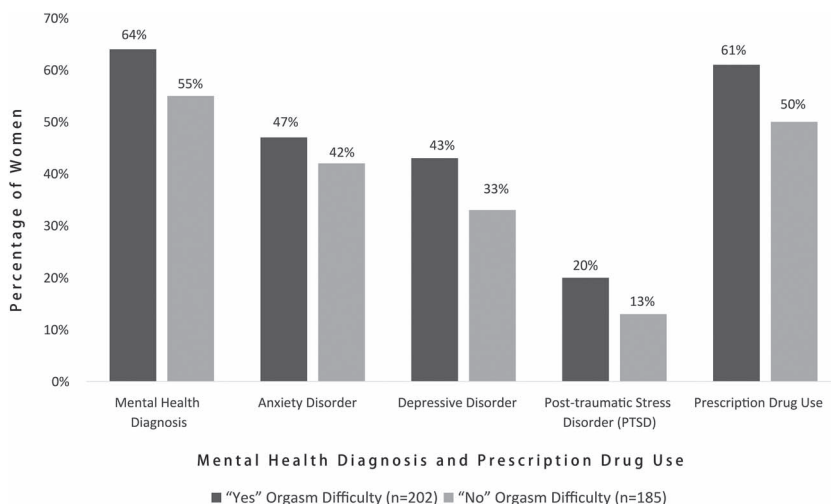
Figure 5. Measures for mental health diagnosis, diagnosis type, and prescription drug use for women who responded yes or no to orgasm difficulty were fielded from March 23 to November 18, 2022, of women aged at least 18 years who reported using cannabis before partnered sex. Respondents were asked, "Do you have a mental health diagnosis?" and if yes, respondents were asked the following question: "Please check your mental health diagnosis with the following options: anxiety disorder, depressive disorder, bipolar disorder, posttraumatic stress disorder, or other." Respondents were also asked, "Are you on any prescription medication?" (yes or no). Comparative raw data are presented.

<10 years (60%, n = 121), and indicated not practicing a religion (75%, n = 152).

Mental health and prescription medication

Statistically significant differences were found among all women who had a mental health diagnosis (231/387) regarding a more positive orgasm response when using cannabis before sex, N = 387, $F(1, 385) = 8.60$, $P = .004$ (1-factor ANOVA). Of the women with FOD (n = 202), 64% (n = 129) had a mental health diagnosis, and 61% (n = 123) took prescription medication. On average, women with FOD had 24% more mental health issues, 52.6% more cases of posttraumatic stress disorder (PTSD), 29% more depressive disorders, 13% more anxiety disorders, and 22% more prescription drug use than women without FOD. Figure 5 presents the data.

Sexual abuse history

A statistically high percentage (32.3%, 125/387) of women who had a history of sexual abuse, with or without FOD, reported experiencing a more positive orgasm response to cannabis before sexual activity, $F(1, 385) = 8.84$, $P = .003$ (1-factor ANOVA). Among women with FOD (n = 202), those with a history of sexual abuse (38.6%, n = 74) represented 32.9% more sexual abuse history than women without FOD (27.6%, 51/185). Figure 6 presents the data.

Discussion

The results corroborate 50 years of anecdotal and learned speculation about cannabis helping women with FOD. The research found that cannabis use increased orgasm frequency, eased orgasm difficulty, and improved orgasm satisfaction. At the same time, the results opened new areas of discussion.

Improved orgasm response for women with a mental health diagnosis

Women in this study with 1 or more mental health diagnoses who use cannabis before partnered sex have a more positive
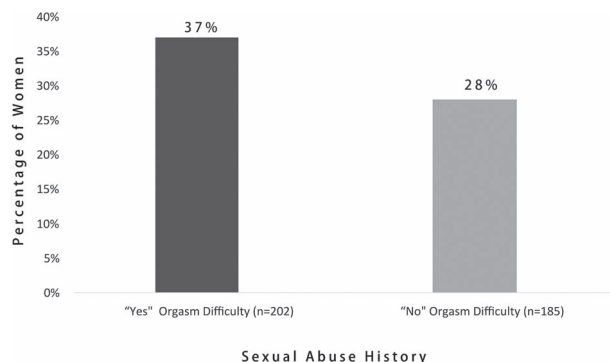

Figure 6. Measures for sexual abuse history for women who responded yes or no to orgasm difficulty were fielded from March 23 to November 18, 2022, of women aged at least 18 years who reported using cannabis before partnered sex. Respondents were asked, "Do you have a history of sexual abuse?" (yes or no). Comparative data are presented.

orgasm response regardless of whether they have FOD. These results are consistent with research finding that women with FOD experience high rates of mental health diagnoses,[8,29–32] prescription drug use,[33–35] or PTSD.[36–39] Women with anxiety disorders represented 44% (172/387) of women in this study. They were 3.5 times more likely to have FOD than nonanxious women.[40]

Cannabis use resulted in more orgasms for sexual abuse survivors

Sexual abuse survivors' number 1 sexual complaint is orgasm difficulty,[41] coupled with high rates of PTSD.[42,43] This study revealed that 33% more women with sexual abuse histories reported FOD than women without FOD. THC in cannabis reduces activity in the hippocampus and amygdala,[22,24] the parts of the brain that store and react to traumatic memories.[44,45] This activity may play a role in extinguishing traumatic memories[24] and result in a more positive orgasm response.

Cannabis and FOD treatment theories

Several theories explore why cannabis may be an effective treatment for FOD.[46] Dishabituation theory[46] proposes that cannabis lessens the routine of habits,[47] such as cognitive distraction, a known FOD cause,[48–53] and proposes that dishabituation may positively affect FOD.[46] Neuroplasticity theory proposes that some women learn to orgasm while using cannabis,[46] as seen in comments in this study and anecdotally.[13,54] Cannabis and endocannabinoids, the cannabinoids created by the human body, are increasingly recognized for their roles in neural development processes, including brain cell growth and neuroplasticity.[55]

Multimodal treatment theory proposes that women who use cannabis for any reason may lessen their FOD,[46] as noted by Kasman et al, who found that for each step up of cannabis use, female sexual dysfunction declined by 21%.[5] Amygdala reduction theory proposes that reduced amygdala activity can positively affect FOD.[46] Hypervigilance, anxiety, and PTSD are responses of the amygdala[45] and commonly impair sexual response.[38,56]

Limitations

This study may not be generalizable to women who rarely use or do not use cannabis before sex, women who have never had an orgasm, or women who do not have female genitalia. The cultivar of cannabis was not a focus of this study, nor was the chemotype or amount of cannabis used. The partner's use or nonuse was also not evaluated in the study.

Cannabis use before sex did not help all women

Cannabis use before sex did not help all women orgasm. Among survey respondents, 4% reported never having had an orgasm, even though they used cannabis before partnered sex.

Conclusions

This study's findings support 50 years of speculation and research suggesting cannabis as a treatment for FOD. Key results of improved orgasm frequency, ease, and satisfaction for women reporting FOD during partnered sex show the potential of cannabis becoming a recognized treatment.

Cannabis use before partnered sex appears valuable to women who use it to treat FOD. Indeed, women with FOD experienced improvement during partnered sex regardless of the time frame of cannabis use.

Future research should focus investigations on the potential of cannabis as a treatment option for women who have been diagnosed with mental health diagnoses or have a sexual abuse history. Previous studies have indicated that women with these conditions experienced more positive orgasmic responses and greater satisfaction when using cannabis before sex. It is also essential to explore the use of cannabis as a treatment for primary anorgasmia, as well as for women who used to be able to orgasm but are now unable to do so. This study, with anecdotal reports and less focused studies, suggests that cannabis may improve orgasmic functioning in these women as well.[13,54] To further evaluate the effectiveness of cannabis in treating female sexual dysfunction and determine the appropriate dosage, it is recommended to conduct randomized controlled studies.

Supplementary material

Supplementary material is available at *Sexual Medicine* online.

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