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Sociodemographic Characteristics of Cannabis Smokers and the Experience of Cannabis Withdrawal

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Abstract

Background—Cannabis withdrawal can be a negative reinforcer for relapse, but little is known about its association with demographic characteristics.

Objectives—Evaluate the association of demographic characteristics with the experience of cannabis withdrawal.

Methods—Retrospective self-report of a “serious” cannabis quit attempt without formal treatment in a convenience sample of 104 non-treatment-seeking, adult cannabis smokers (mean

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age 35 years, 52% white, 78% male) with no other current substance use disorder (except tobacco) or chronic health problems. Reasons for quitting, coping strategies to help quit, and 18 specific withdrawal symptoms were assessed by questionaire.

Results—Among withdrawal symptoms, only anxiety, increased sex drive, and craving showed significant associations with age, race, or sex. Women were more likely than men to report a physical withdrawal symptom (*OR* = 3.2, 95% CI = .99–10.4, *p* = .05), especially upset stomach. There were few significant demographic associations with coping strategies or reasons for quitting.

Conclusions and Scientific Significance—This small study suggests that there are few robust associations between demographic characteristics and cannabis withdrawal. Future studies with larger samples are needed. Attention to physical withdrawal symptoms in women may help promote abstinence.

Keywords

Age; cannabis; marijuana; quitting; race; relapse; sex; withdrawal

Introduction

Cannabis is the most widely used illicit drug in the world, with an estimated 166 million users worldwide (1) and 14.4 million current (past month) cannabis users in the United States (2). In the United States, 3.9 million cannabis users meet criteria for cannabis abuse or dependence (2). However, only 936,000 people received treatment for cannabis abuse/dependence in 2007 (2).

Epidemiologic evidence, such as the disparity between the number of individuals with current cannabis dependence and the number in treatment for cannabis dependence, suggests that many cannabis users attempt to stop use without formal treatment (“spontaneous quitting”) (3). Only one-quarter of those with current abuse/dependence (cannabis use disorders) engage in formal drug abuse treatment (4). There are few published studies on spontaneous quitting in adult cannabis users. We have previously reported characteristics of the quitting experience in a convenience sample of 104 adult, non-treatment-seeking cannabis smokers, including coping strategies for quitting (3), withdrawal symptoms (5), and reasons for quitting (6).

Significant associations between patient demographic characteristics and substance use history among cannabis users have been reported. Studies in community samples suggest that younger individuals and men may be more likely to use cannabis heavily and to develop cannabis dependence, whereas women may be more likely to report cannabis withdrawal (7–12), although some studies find no age or sex differences (13, 14).

Few published studies have evaluated the association between demographic characteristics and the quitting experience in adult or non-treatment-seeking subjects. A retrospective community survey of 1,735 frequent marijuana users evaluated the experience of multiple withdrawal symptoms and found a significant difference by race (African-Americans more likely than whites) but not by sex (15). However, that study did not evaluate associations with age nor report on associations with specific withdrawal symptoms or other aspects of the quitting experience. A retrospective community survey (National Epidemiologic Survey of Alcohol and Related Conditions [NESARC]) of 1,119 frequent (using ≥ 3 times weekly at period of peak lifetime use) cannabis users who were not frequent users of alcohol or other drugs found no significant differences in prevalence of 18 individual cannabis withdrawal symptoms by age, sex, or race/ethnicity (16). A separate analysis of NESARC

data from 1,603 current (past 12 months) cannabis users also found no significant sex differences in the prevalence of 20 withdrawal symptoms, with two exceptions (17). Women were more likely than men to experience nausea/vomiting/stomach ache (3.2% vs. 1.7%), whereas men were more likely to experience goose bumps/pupil dilation (4.6% vs. 2.2%).

This study is a cross-sectional, retrospective, self-report study examining the association of subjects' age, race, and sex with characteristics of a spontaneous quitting attempt in the previously described (5) sample of 104 adult cannabis smokers, including their cannabis and other substance use, reasons for quitting, coping strategies, and withdrawal symptoms. This is the first study of which we are aware to evaluate the association of age, race, and sex with all these aspects of the cannabis quitting experience.

Methods

Subjects

Subjects were a convenience sample of 104 non-treatment-seeking, adult cannabis smokers recruited 1996–2003 from two non-treatment research studies: 45 subjects participating in a longitudinal observational lung health study of habitual cannabis smokers conducted at the University of California, Los Angeles (UCLA) and 59 subjects in non-treatment residential studies at the National Institute on Drug Abuse Intramural Research Program (NIDA IRP) in Baltimore, Maryland. Subjects had no chronic health problems, were not taking prescribed medications, and were predominantly young adult (mean age 35 years), white (52%), males (78%) (see Table 1). This sample is somewhat older (median age 34 years vs. 25 years) and has fewer whites (52% vs. 75%), women (22% vs. 41%), full- or part-time employed (43% vs. 68%), and high school dropouts (17% vs. 29%) than among the 2000 U.S. household population of current (past 12 months) cannabis users without other drug dependence (except tobacco) (18). It is comparable to the 2000 household population in marital status.

The study was approved by the UCLA and NIDA IRP Institutional Review Boards. Written informed consent was obtained from all subjects, who were reimbursed for their participation.

All subjects were primary cannabis smokers, with no other current substance use disorders (except tobacco in most cases), who reported at least one “serious” (self-defined) attempt to stop using cannabis not involving formal treatment. See Table 1 for cannabis use characteristics.

Procedures and Instruments

Marijuana Quit Questionnaire—The Marijuana Quit Questionnaire (MJQQ) is an individually administered, 176-item self-report questionnaire that collects information in 3 domains: demographic data, cannabis use history (e.g., chronology and patterns of use), characteristics of subjects' quit attempts, and reasons for resuming cannabis use following a period of abstinence. The quit attempt is characterized in 4 areas: 1) reasons for quitting cannabis use (6), 2) coping strategies used while quitting (3), 3) withdrawal symptoms experienced during quitting (5), and 4) changes in other substance use (both licit and illicit) (6).

Twenty-three possible reasons for quitting cannabis use were drawn from published questionnaires used to study motivation for quitting among treatment-seeking marijuana users (19, 20), supplimented with questions from published questionnaires used to study motivation for tobacco smoking cessation (21). To assess reasons for marijuana relapse, subjects were asked, “If you went back to smoking marijuana after trying to quit, what were the three most important reasons that caused you to resume smoking marijuana?” This was

an open-ended question, without pre-specified responses. Fifteen possible coping strategies for dealing with a quit attempt were adapted from published studies of spontaneous quitters from alcohol and other drugs (22–25). Eighteen possible withdrawal symptoms were drawn from anecdotal and published reports of marijuana withdrawal (15, 26, 27). For each symptom experienced, the subject indicated what, if anything, was done to relieve it. Finally, subjects were asked whether their attempt to quit smoking marijuana affected their consumption of other drugs (both legal and illicit).

Data Collection and Measurement

All study data were collected via retrospective self-report at a single session taking approximately 20 minutes. No attempt was made to collect corroborating information.

Statistical Analyses

The association of age (younger vs. same or older than median age of 34 years), race (African-American vs. white), and sex with quit attempt characteristics was evaluated by *t*-test for quantitative variables and by Kruskal–Wallis test for categorical variables. The separate influence of each baseline subject demographic and cannabis use characteristic (Table 1) on the withdrawal experience was evaluated with bivariate logistic regression analyses. Variables showing a significant effect were included in a multiple logistic regression analysis using backwards entry. Small sample sizes precluded more extensive multivariate or subgroup analyses. Two-tailed alpha = .05 was used for all comparisons. Statistical analyses were performed with SPSS version 15.0.0 (SPSS, Chicago, IL) or SAS version 9 (SAS Institute, Cary, North Carolina) for regression analyses.

Results

Sociodemographic characteristics were equally distributed among subjects by sex but not by race and age (Table 1). African-Americans were less likely than whites to be high-school graduates or employed. Older subjects were more likely than younger subjects to be white, employed, married, and high school graduates.

There were significant racial and age, but not sex, differences in cannabis use history (Table 1). African-Americans, compared to whites, reported a younger age of first cannabis use, a shorter duration of lifetime cannabis use, and a longer duration of longest quit attempt. Older subjects, in comparison to younger subjects, reported a longer duration of lifetime cannabis use. There were few sociodemographic differences in non-cannabis substance use at the time of the quit attempt (data not shown). African-Americans were more likely than whites to be using tobacco products (84.4% vs. 53.5%, $p = .003$). Women were more likely than men to be using sleep medication (50% vs. 16.2%, $p = .02$).

There were few demographic differences in the incidence of reasons for quitting cannabis use. Some of these differences would not remain statistically significant after adjustment of *p* values to protect against false positive (type I error) findings due to multiple comparisons (e.g., the Bonferroni correction would require $p < .02$ [rather than $p < .05$] for statistical significance when testing the 23 reasons for quitting) (Table 2). Of the 23 possible reasons for quitting, significant group differences in incidence were found for only 2 (9%) by age (get a lot of praise from people close to me, drug testing policy at work), 3 (13%) by race (get a lot of praise from people close to me, get more things done during the day, drug testing policy at work), and 5 (22%) by sex (would have health problems if I didn't quit, people I am close to would be upset if I didn't quit, get more things done during the day, have more energy, won't burn holes in clothes or furniture). Overall, younger and African-

American subjects were more likely to quit to earn praise from people close to them and because of drug testing at work (Table 2).

There were modest racial and age, but not sex, differences in the incidence of reported coping strategies used during quitting (Table 3). Of the 15 possible quitting strategies, significant group differences in incidence were found for only 4 (27%) by age (got rid of all cannabis paraphernalia, got counseling or psychotherapy, quit without any help at all, other) and 3 (20%) by race (got counseling or psychotherapy, quit without any help at all, other). Overall, older and white subjects were more likely to get counseling and psychotherapy, while younger and African-American subjects were more likely to quit without any help at all (Table 3).

Ninety-three subjects (89.4%) reported experiencing at least one cannabis withdrawal symptom. There were no significant associations between age, race, or sex and reporting a withdrawal symptom (data not shown), and few demographic differences in the reporting of specific symptoms. Few of these differences would remain statistically significant after adjustment of p values to protect against false positive findings (Type I error) due to multiple comparisons (e.g., the Bonferroni correction would require $p < .03$ [rather than $p < .05$] for statistical significance when testing the 18 withdrawal symptoms) (Table 4). Of the 18 possible withdrawal symptoms recorded, significant group differences in incidence were found for only 2 (11%) by age (increased anxiety, increased sex drive), 5 (28%) by race (increased anxiety, difficulty sleeping, cannabis craving, depression, increased sex drive), and 3 (17%) by sex (cannabis craving, increased sex drive, upset stomach). Women were more likely than men to report a physical withdrawal symptom (*OR* = 3.2, 95% CI = .99–10.4, $p = .05$).

Sixty-nine (66.4%) subjects reported at least 3 withdrawal symptoms. The mean (median) number of symptoms per subject was 3.8 (3). There was no significant association between age, race, or sex and mean or median number of symptoms per subject (data not shown). Cannabis use characteristics (variables in Table 1) had no significant association with the number of withdrawal symptoms reported or the likelihood of reporting any withdrawal symptom, any physical withdrawal symptom, or at least 3 symptoms (data not shown).

There were no significant sex or age differences in changes in use of legal or illicit substances during the cannabis quit attempt (data not shown). Whites were more likely than African-Americans to start or increase their use of caffeine (25.6% vs. 3.1%, $p = .003$) and sleep medications (23.3% vs. 3.1%, $p = .02$).

Discussion

This study examined the association of demographic characteristics with the experience of quitting cannabis without formal drug abuse treatment. We found few significant age and racial differences in cannabis use history (Table 1), characteristics of the quit attempt, including reasons for quitting (Table 2), coping strategies used during the quit attempt (Table 3), or the incidence of specific withdrawal symptoms (Table 4). The finding of no substantial demographic differences in cannabis withdrawal symptoms is consistent with the large-scale, community-based NESARC study, which found no age, race/ethnicity, or sex (with 2 exceptions) differences in prevalence of 18 or 20 specific cannabis withdrawal symptoms in lifetime or current cannabis users (16, 17). It is also consistent with a study of 121 cannabis-dependent adolescents in treatement which found no significant gender differences in prevalence of 16 individual withdrawal symptoms (although women appeared to have a greater prevalence of nausea/vomiting, 7.7% vs. 3.2%) (28).

This study found women more likely than men to report physical withdrawal symptoms, due largely to their greater incidence of upset stomach. This is consistent with the greater incidence of upset stomach. This is consistent with the greater incidence in women of nausea/vomiting/stomach ache (3.2% vs. 1.7%) in the NESARC study (17). Because withdrawal symptoms can serve as negative reinforcement for relapse (5), these findings suggest that women undergoing cannabis withdrawal should be evaluated for physical symptoms and offered prompt treatment to alleviate them.

Strengths of the present study include the detailed data collected about several aspects of cannabis quit attempts and the non-treatment-seeking status of subjects. This status makes them similar to about three-quarters of current cannabis-abusing or dependent individuals in the United States (4).

This study has several limitations. Data were obtained by retrospective self-report without external corroboration, as is true of most studies of cannabis quitting. There is evidence that cannabis users not in treatment give reliable retrospective self-report about their cannabis use histories (29, 30) and withdrawal symptoms (31). Subjects were a convenience sample of non-treatment-seeking subjects at two sites in one country, so the external validity of findings may be limited. Compared to the 2000 U.S. national household population of current (past 12 months) cannabis users without other drug dependence (except tobacco), subjects in this study were more likely to be older, male, African-American, and unemployed. Finally, because this was an exploratory, secondary analysis with relatively small subgroup sizes, the statistical analyses ignored potential confounding because of differential associations among demographic characteristics (Table 1) or the possibility of type 1 error because of multiple tests. Thus, the findings of this study should be considered preliminary and as suggesting avenues for further research.

Conclusions

Our findings, although preliminary, provide the first evidence that there are few age, race, or sex differences in the experience of quitting cannabis use without formal treatment (“spontaneous” quitting), including reasons for quitting, coping strategies, and withdrawal symptoms. However, women were more likely than men to report physical symptoms, suggesting the clinical relevance of sex differences in withdrawal symptoms. Future research with larger samples is needed to confirm and extend these findings, with the hope that more relevant demographic targeting of prevention and treatment programs might improve treatment adherence and effectiveness.

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TABLE 1

Association of sociodemographic and cannabis use characteristics among 104 adult, non-treatment-seeking cannabis smokers.

	% (*n*) of Subjects								
	Age (years)			Race			Sex		
	<34 (*n* = 51)	**≥34 (*n* = 53)**	***P****	**White (*n* = 54)**	**African-American (*n* = 42)**	**p***	**Male (*n* = 81)**	**Female (*n* = 23)**	**p***
Male	71% (36)	85% (45)	.08	78% (42)	74% (31)	.65			
White	14% (7)	92% (47)	**.0001**				52% (42)	52% (12)	.65
African-American	84% (38)	8% (4)							
Never married[a]	88% (37)	48% (23)	**.0001**	54% (25)	78% (29)	.07	65% (46)	74% (14)	.47
Employed (full- or part-time)[a]	13% (33)	81% (6)	**.0001**	72% (7)	15% (26)	**.0001**	37% (26)	68% (13)	**.02**
High school education or higher[a]	74% (31)	92% (44)	**.02**	91% (42)	70% (26)	**.01**	89% (63)	63% (12)	**.01**
					Mean (SD)				
Age (years)	24.7 (3.5)	44.9 (6.0)	**.0001**	42.7 (9.3)	26.3 (5.4)	**.0001**	36.0 (10.8)	31.2 (12.2)	**.07**
Age at first cannabis use (years)[a]	15.8 (3.4)	17.4 (4.2)	.06	17.6 (4.2)	15.7 (3.6)	**.03**	16.9 (3.7)	15.5 (4.3)	.18
Total years of lifetime cannabis use[a]	9.0 (3.0)	27.8 (4.0)	**.0001**	27.1 (6.3)	10.7 (5.0)	**.0001**	19.4 (10.3)	17.5 (9.4)	.47
Number of lifetime cannabis quit attempts	2.8 (4.1)	5.0 (13.7)	.26	5.5 (14.0)	2.1 (1.3)	.09	4.3 (11.4)	2.6 (3.3)	.48
Duration of longest quit attempt (days)	125 (188)	164 (477)	.58	51 (76)	216 (400)	**.01**	156.6 (402.3)	103.2 (169.8)	.54

[a] based on $n = 90$.

* *P* value for difference between two groups by Kruskal–Wallis test for proportions and by *t*-test for group means. Significant *P* values indicated in **bold.**

TABLE 2

Association of demographic characteristics with reasons for quitting cannabis use among 104 adult, non-treatment-seeking cannabis smokers.

	% (*n*) Reporting								
	Age (years)			Race			Sex		
Reason for Quitting	**<34 (*n* = 51)**	**≥34 (*n* = 53)**	***P****	**White (*n* = 54)**	**Black (*n* = 42)**	***P****	**Male (*n* = 81)**	**Female (*n* = 23)**	**P***
To show myself I could quit if I really wanted to	86% (44)	72% (38)	.07	74% (40)	81% (34)	.43	83 (67)	65 (15)	.07
Because I would like myself better if I quit	45% (23)	51% (27)	.55	50% (27)	48% (20)	.82	49 (40)	43 (10)	.62
Because I wouldn't have to leave social functions or other people's homes to smoke	33% (17)	32% (17)	.89	33% (18)	29% (12)	.62	37 (30)	17 (4)	.08
So that I could feel in control of my life	59% (30)	68% (36)	.34	69% (37)	50% (21)	.07	60 (49)	74 (17)	.24
Because my spouse, children, or other person I am close to would stop nagging me if I quit	41% (21)	40% (21)	.87	39% (21)	48% (20)	.39	41 (33)	39 (9)	.89
So that I could get a lot of praise from people close to me	35% (18)	17% (9)	**.03**	15% (8)	43% (18)	**.002**	25 (20)	30 (7)	.58
Because smoking cannabis does not fit in with my self-image	29% (15)	40% (21)	.28	37% (20)	36% (15)	.89	35 (28)	35 (8)	.99
Because smoking cannabis is becoming less socially acceptable	24% (12)	30% (16)	.45	28% (15)	24% (10)	.66	27 (22)	26 (6)	.92
Because someone gave me an ultimatum	20% (10)	11% (6)	.24	13% (7)	17% (7)	.61	17 (14)	9 (2)	.32
Because of concern that I would have health problems if I didn't quit smoking	61% (31)	59% (31)	.81	65% (35)	52% (22)	.22	54 (44)	78 (18)	**.04**
Because people I am close to would be upset with me if I didn't quit	18% (9)	25% (13)	.39	24% (13)	14% (6)	.24	27 (22)	0 (0)	**.005**
So that I could get more things done during the day	53% (27)	57% (30)	.71	65% (35)	41% (17)	**.02**	48 (39)	78 (18)	**.01**
Because I notice physical symptoms indicating that smoking cannabis was hurting my health	37% (19)	45% (24)	.41	43% (23)	45% (19)	.80	39 (32)	48 (11)	.48
To save the money spent on cannabis	78% (40)	66% (35)	.16	63% (34)	79% (33)	.10	73 (59)	70 (16)	.76
To prove to myself that I am not or wasn't addicted to cannabis	69% (35)	59% (31)	.29	59% (32)	62% (26)	.79	67 (54)	52 (12)	.21
Because of a drug testing policy where I work	43% (22)	13% (7)	**.001**	9% (5)	52% (22)	**.0001**	31 (25)	17 (4)	.21
Because I have known other people who have had health problems that were caused by smoking cannabis	6% (3)	8% (4)	.74	9% (5)	5% (2)	.40	9 (7)	0 (0)	.15
Because of concern that smoking cannabis would shorten my life	39% (20)	36% (19)	.72	35% (19)	36% (15)	.96	39 (32)	30 (7)	.43
Because of legal problems related to my use of cannabis	10% (5)	17% (9)	.29	19% (10)	10% (4)	.22	14 (11)	13 (3)	.95
Because I don't want to be a bad example for children	51% (26)	47% (25)	.70	44% (24)	57% (24)	.22	53 (43)	35 (8)	.12
To have more energy	59% (30)	55% (29)	.67	61% (33)	50% (21)	.28	83 (67)	78 (18)	**.02**
So that my hair and clothes won't smell like cannabis	28% (14)	34% (18)	.47	28% (15)	36% (15)	.41	49 (40)	39 (9)	.33
So that I won't burn holes in clothes or furniture	16% (8)	15% (8)	.93	13% (7)	21% (9)	.27	37 (30)	30 (7)	**.02**

** P* value for difference between two groups by Kruskal–Wallis test for proportions. Significant *P* values indicated in **bold.**

TABLE 3

Association of demographic characteristics with coping strategies used during quit attempts by 104 adult, non-treatment-seeking cannabis smokers.

	% (*n*) Reporting								
	Age (years)			Race			Sex		
Coping Strategies	**<34 (*n* = 51)**	**≥34 (*n* = 53)**	***P****	**White (*n* = 54)**	**Black (*n* = 42)**	**P***	**Male (*n* = 81)**	**Female (*n* = 23)**	***P****
Encouragement from family	35%(17)	35%(14)	.98	34%(14)	38%(15)	.75	30.9%(25)	26.1%(6)	.81
Encouragement from friends	20%(10)	33%(13)	.20	34%(14)	20%(8)	.16	19.8%(16)	30.4%(7)	.07
Stopped associating with people who smoke cannabis	46%(23)	43%(17)	.74	44%(18)	37%(15)	.50	38.3%(31)	39.1%(9)	.44
Stopped going to places where cannabis was smoked	54%(27)	40%(16)	.19	44%(18)	46%(19)	.83	42.0%(34)	39.1%(9)	.64
Got rid of all cannabis	56%(28)	48%(19)	.43	54%(22)	44%(18)	.38	48.1%(39)	34.8%(8)	.64
Got rid of all cannabis paraphernalia	62%(29)	35%(14)	**.01**	42%(17)	53%(20)	.32	44.4%(36)	30.4%(7)	.84
Attended a self-help group (e.g., AA)	12%(6)	25%(10)	.11	24%(10)	15%(6)	.27	17.3%(14)	8.7%(2)	.47
Got counseling or psychotherapy	0%(0)	15%(6)	**.006**	15%(6)	0%(0)	**.01**	7.4%(6)	0%(0)	.25
Saw a physician	0%(0)	8%(3)	.06	7%(3)	0%(0)	.09	3.7%(3)	0%(0)	.43
Took non-prescription medication	0%(0)	3%(1)	.27	2%(1)	0%(0)	.33	1.2%(1)	34.8%(8)	.65
Took prescription medication	0%(0)	8%(3)	.06	5%(2)	3%(1)	.59	3.7%(3)	0%(0)	.43
Took herbal medicine, vitamins, or nutritional supplement	10%(5)	8%(3)	.68	10%(4)	10%(4)	1.0	7.4%(6)	8.7%(2)	.65
Had acupuncture	0%(0)	0%(0)	1.0	0%(0)	0%(0)	1.0	0%(0)	0%(0)	1.00
Other	3%(1)	25%(10)	**.006**	29%(11)	0%(0)	**.001**	13.6%(11)	0(0)	.13
Quit without any help at all	76%(38)	50%(20)	**.01**	44%(18)	78%(32)	**.002**	55.6%(45)	56.5%(13)	.25

** P* value for difference between two groups by Kruskal–Wallis test for proportions. Significant *P* values indicated in **bold.**

TABLE 4

Association of demographic characteristics with cannabis withdrawal symptoms among 104 adult, non-treatment-seeking cannabis smokers.

	% (*n*) Reporting								
	Age (years)			Race			Sex		
Withdrawal Symptoms	**<34 (*n* = 51)**	**≥34 (*n* = 53)**	***P****	**White (*n* = 54)**	**Black (*n* = 42)**	***P****	**Male (*n* = 81)**	**Female (*n* = 23)**	***P****
Increased anxiety	18%(9)	45%(24)	**.003**	43%(23)	21%(9)	**.03**	31(25)	35(8)	.72
Difficulty sleeping	24%(12)	40%(21)	.08	41%(21)	19%(8)	**.02**	33(27)	26(6)	.51
Cravings for cannabis	61%(31)	72%(38)	.24	72%(39)	52%(22)	**.05**	72(58)	48(11)	**.03**
Increase in appetite	28%(14)	23%(12)	.57	26%(14)	29%(12)	.77	26(21)	22(5)	.68
Decrease in appetite	24%(12)	23%(12)	.92	22%(12)	21%(9)	.93	26(21)	13(3)	.20
Depression	12%(6)	25%(13)	.09	26%(14)	10%(4)	**.04**	17(14)	22(5)	.63
Irritability	45%(23)	51%(27)	.55	50%(27)	41%(17)	.36	48(39)	48(11)	.98
Increase in sex drive	28%(14)	11%(6)	**.04**	13%(7)	31%(13)	**.03**	23(19)	4(1)	**.04**
Decrease in sex drive	6%(3)	15%(8)	.13	13%(7)	10%(4)	.60	9(7)	17(4)	.23
Boredom	45%(23)	45%(24)	.99	43%(23)	48%(20)	.63	47(38)	39(9)	.51
Physical discomfort	6%(3)	13%(7)	.21	13%(7)	7%(3)	.36	9(7)	13(3)	.53
Improved memory	28%(14)	36%(19)	.36	35%(19)	31%(13)	.66	31(25)	35(8)	.72
Tremor, shakiness	4%(2)	4%(2)	.97	4%(2)	5%(2)	.80	5(4)	0(0)	.28
Muscle twitches	0%(0)	2%(1)	.33	2%(1)	0%(0)	.38	1(1)	0(0)	.59
Nausea	0%(0)	6%(3)	.09	6%(3)	0%(0)	.12	2(2)	4(1)	.64
Vomiting	0%(0)	2%(1)	.33	2%(1)	0%(0)	.38	1(1)	0(0)	.59
Diarrhea	0%(0)	2%(1)	.33	2%(1)	0%(0)	.38	1(1)	0(0)	.59
Upset stomach	8%(4)	4%(2)	.38	4%(2)	10%(4)	.25	2(2)	17(4)	**.007**

** P* value for difference between two groups by Kruskal–Wallis test for proportions. Significant *P* values indicated in **bold.**