Cannabis and complementary/alternative self-treatment approaches for symptom management among African American persons living with HIV

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Abstract

Persons living with HIV (PLWH) experience symptoms from disease progression and side effects of antiretroviral treatment. This study examines in African American PLWH (*N*=259) commonly-endorsed symptoms, types and self-rated efficacy of therapies for symptom alleviation. Analyses were stratified by gender (*n*=178 males, *n*=81 females) and cannabis use typology: non-users (*n*=90), mostly recreational use (*n*=46), mixed recreational/therapeutic use (*n*=51), or mostly therapeutic use (*n*=72). Females reported greater severity for pain, fatigue, depression, weight change and tingling in extremities, but there were no gender differences for ratings of poor sleep, anxiety, poor appetite, or headache. Both marijuana (used therapeutically by females more than males) and medication(s) were among the 3 top methods for managing pain, poor sleep, anxiety, and headache. Marijuana was most often used for poor appetite, and medications for depression. Perceived efficacy of self-treatment approaches was moderately good. Among African American PLWH, symptom severity was higher for females and for therapeutic users of cannabis. Marijuana and medicine were often used to self-treat symptoms, but many participants did nothing. These results highlight the need for careful evaluation and management of symptoms in this underserved population.

Keywords

HIV; Marijuana; Symptoms; Treatment; Alternative therapies

Introduction

The human immunodeficiency virus (HIV) disproportionately impacts minorities. Of 38,000 newly-diagnosed HIV cases in 2018, 42% were African American, 27% were Hispanic, and 25% were Caucasian (CDC, 2020). African Americans routinely face obstacles when seeking and receiving HIV treatment, citing discrimination, medical mistrust, and poor communication as undermining quality of healthcare (Cuevas et al. 2016). These barriers underscore the importance of examining how African American persons living with HIV (PLWH) manage disease-related symptoms.

Antiretroviral therapies enable PLWH to live longer, healthier lives. Still, PLWH experience symptoms from disease progression and/or treatment side effects (Wilson et al., 2016). PLWH often use complementary and alternative medicine (CAM) therapies to alleviate symptoms (Institute of Medicine, 2005; Kelso-Chichetto et al., 2016). Minority and lower SES groups use CAM less often than other groups (Littlewood & Vanable, 2008; Lorenc & Robinson, 2013). Although many PLWH claim alternative therapies are helpful (Fairfield et al., 1998), few studies examine symptom-specific efficacy of CAM therapies and none in African American PLWH.

Cannabinoid (e.g., marijuana, dronabinol) use is common among PLWH, especially for appetite loss (Badowski & Perez, 2016), but rarely studied alongside CAM use. Difficulties in differentiating therapeutic vs. recreational cannabis use (Costiniuk et al., 2019; Towe et al., 2018) lead us to consider cannabis/marijuana use as *substance use* rather than CAM, unless otherwise qualified.

This study uses a symptom-focused approach to characterize how African American PLWH treat their unique burdens. Given gender differences in HIV-related symptoms or CAM use (Halpin et al. 2018; Littlewood & Vanable 2008), data analyses were stratified by gender and therapeutic motivation for cannabis use.

Methods

Participants

The local IRB approved all procedures. All participants provided informed consent. Volunteers received healthcare at an urban-centered HIV/AIDS treatment program. Data were collected when only "medical marijuana" use was legal in Michigan.

PLWH were recruited via clinic-based advertisements and contact with clinical staff. Participants enrolled in a: (1) cross-sectional probability survey; or (2) prospective evaluation of marijuana-using individuals (only baseline visit data used). African American volunteers   18 years old were included. Exclusion criteria were inability to speak/comprehend English, and being transgender (*n*=2).

Assessments

HIV-related symptoms.—Participants rated past 90-day severity of 24 symptoms on a 0–3 scale (0=absent, 1=slightly, 2=somewhat, 3=severe): pain, depression, anxiety, poor appetite, weight change, poor sleep, fatigue/lack of energy, memory loss, cough, shortness of breath, fever, night sweats, nausea, vomiting, constipation, diarrhea, tingling in extremities, numbness in extremities, muscle weakness, tremor, headache, not interested in sex, slurred speech, and vision problem.

Symptom treatments.—Content analysis of participants' open-ended descriptions was used to group treatments into 12 categories: nothing done; medicine (prescribed or over-the-counter); marijuana/cannabis; alcohol or cigarettes; psychosocial (e.g., talking with therapist); prayer or meditation; relaxation techniques (e.g., deep breathing, sleep); physical activity (e.g., yoga, exercise); at-home remedies; distraction (e.g., watch television); other (mostly dietary modification); multiple methods that included cannabis; and multiple methods that excluded cannabis.

Participants who endorsed any symptom-alleviation approach also rated perceived treatment efficacy on a 5-point Likert scale: −2 (much worse), −1 (a little worse), 0 (no change), 1 (a little better), and 2 (much better).

Past 90-day substance use.—Participants reported number of past-90 days they used each substance (cannabis, alcohol, opioids, cocaine, sedatives); in the prospective study, cannabis use was confirmed with THC-positive urine testing; urine was not collected in the probability survey study. Participants reported percent of occasions they "used marijuana for symptom relief" (100%=entirely therapeutic; 0%=entirely recreational). Four cannabis-use groups were created: non-users (n=90); mostly-recreational users (n=46; used   30% of occasions therapeutically); mixed recreational/therapeutic users (n=51; used 31–69% of occasions therapeutically); and mostly-therapeutic users (n=72; used   70% of occasions therapeutically).

Data analysis

Response distributions were inspected for normality; measures with non-normal distributions were $\log_{10}$-transformed. Descriptive statistics were computed, analyses of variance (ANOVAs; group factor: self-identified gender [male, female]) were conducted for continuous measures, and chi-square tests were conducted for categorical measures. For ANOVA *post hoc* evaluation of symptom severity scores, we used Tukey HSD tests.

Among current cannabis users, Spearman *rho* and Kendall *tau* correlations were conducted between participants' reports of percentage of time they used cannabis therapeutically with symptom severity, use of any treatment, and treatment efficacy.

Results

Participant characteristics

Participants (N=259; n=190 from probability survey; n=69 from prospective study) were mostly males self-identifying as heterosexual or gay. Mean age was 46.3 years. Participants received their HIV diagnosis an average of 12.1 years prior to study. Females endorsed using cannabis therapeutically more often than males, but past 90-day marijuana and other substance use did not differ by gender (Table 1). Only 7% of the sample reported current medical marijuana certification.

Symptom severity

Nine of 24 symptoms, each endorsed by >40% of participants, were selected for analyses. For 5 symptoms (pain, fatigue, depression, weight change, tingling in extremities), females reported higher severity (Table 1). Mostly-therapeutic cannabis users rated symptoms as more severe than other groups. More females than males reported pain (72% vs. 55%), fatigue (68% vs. 53%) and tingling in extremities (65% vs. 37%) (Table 2).

Treatment approaches and perceived efficacy

When examining the most commonly-endorsed options by participants reporting non-zero symptom severity (Table 2), 'nothing done' was always among the top 3 responses. Using medicine and cannabis were the most-frequent treatments for pain, poor sleep, anxiety, and headache. Medicine was the most-frequent treatment for depression and tingling in extremities. Cannabis was the most-frequent treatment for poor appetite.

The 2 most frequently-endorsed active treatments for each symptom were rated as effective. Participants reported medicine and marijuana moderately improved symptoms. Efficacy was highest (mean >1.5 of maximum 2) when using: (1) medicine to treat headache; (2) marijuana to treat pain, poor sleep, anxiety, poor appetite, and headache; and (3) psychosocial methods for depression. There were no differences by gender or cannabis-use group in perceived efficacy of self-treatments.

Discussion

This study characterized frequent symptoms and self-treatment modalities among African American PLWH, which merit attention in this underserved population. Over 40% of PLWH reported pain, poor sleep, fatigue, depression, anxiety, weight change, tingling in extremities, poor appetite, and headache. Females reported more severe pain, fatigue, depression, weight change, and tingling in extremities than males, corroborating other findings (Aljassem et al., 2016; Lalanne et al., 2015; Voss et al., 2007). By understanding that African American women living with HIV are at increased risk for certain symptoms, providers can better tailor care.

Mostly-therapeutic cannabis users endorsed higher symptom severity than non-users and recreational cannabis users. Bonn-Miller et al. (2014) also found cannabis-dependent users endorsed "more frequent and severe HIV symptoms/medication side effects" than cannabis non-dependent users and non-users.

Among self-treatment options for all 9 symptoms, doing nothing was highly ranked. Patients may be motivated to self-treat severe symptoms, consistent with data that pain is undertreated in this population (Parker et al., 2014). Symptom undertreatment in African American PLWH may arise from limited healthcare access, provider/patient mistrust, and unequal provider quality of care, and lower rates of antiretroviral treatment (Oster et al., 2011; Saha et al., 2010). Better physician training regarding integrative medicine and symptom palliation might improve patient outcomes.

These African American PLWH commonly use cannabis more than other CAM methods to treat several HIV-related symptoms. Medicine and cannabis were common treatments for poor appetite, pain, poor sleep, anxiety, and headache, consistent with previous studies (Furler et al., 2004; Kosiba et al., 2019; Ware et al., 2003). Other approaches included relaxation/sleep for fatigue, psychosocial methods for depression, home remedies for tingling in extremities, and activity/exercise for weight change. Previous studies had similar findings (Kemppainen et al., 2003), but results may differ by culture and geography (Eller et al., 2010), highlighting the importance of investigating determinants in local communities and not over-generalizing findings.

Participants' rated efficacy of self-care varied across treatments and symptoms. Treatment efficacy was highest when using: medicine for poor sleep, anxiety, depression, and headache; cannabis for poor sleep, anxiety, poor appetite, and headache; and dietary changes for poor appetite and weight change (cf. Fairfield et al., 1998; Ware et al., 2003; Woolridge et al., 2005). We did not observe relationships between participants' past 90-day symptom severity and rated efficacy of self-care. Larger samples and refined measures are necessary to address these issues.

Our study has limitations. First, participants received treatment at an HIV clinic, and might be more involved in their care than a random sample; thus, findings cannot be generalized to all PLWH. Second, therapeutic use of marijuana was based on self-report; few had medical marijuana certification, precluding analyses based on certification status. Third, treatment efficacy could differ by expectancies of how treatment modalities might improve symptoms. Fourth, although age and time-since-diagnosis did not correlate with symptom or self-treatment responses, cohort differences might impact generalizability of findings.

Conclusions

This study highlights how an underserved population of PLWH experiences symptoms of disease progression and antiretroviral treatment, and how they self-treat symptoms. Such findings can inform providers of frequent symptoms experienced by African American PLWH and therapies they choose for symptom alleviation. This could yield better treatment outcomes for patients and more informed, collaborative, and effective patient-provider relationships.

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References

Aljassem K, Raboud JM, Hart TA, et al. (2016). Gender differences in severity and correlates of depression symptoms in people living with HIV in Ontario, Canada. Journal of the International Association of Providers of AIDS Care, 15(1), 23–35. [PubMed: 24899261]

Badowski ME, & Perez SE (2016). Clinical utility of dronabinol in the treatment of weight loss associated with HIV and AIDS. HIV AIDS (Auckl), 8, 37–45. [PubMed: 26929669]

Bonn-Miller MO, Oser ML, Bucossi MM, & Trafton JA (2014). Cannabis use and HIV antiretroviral therapy adherence and HIV-related symptoms. Journal of Behavioral Medicine, 37(1), 1–10. [PubMed: 23054178]

Centers for Disease Control and Prevention. Statistics Overview. https://www.cdc.gov/hiv/statistics/overview/index.html. Published May 18, 2020.

Costiniuk CT, Saneei Z, Salahuddin S, Cox J, Routy J-P, Rueda S, et al. (2019) Cannabis consumption in people living with HIV: reasons for use, secondary effects, and opportunities for health education. Cannabis and Cannabinoid Research, 4, 204–213. [PubMed: 31579835]

Cuevas AG, O'Brien K, & Saha S (2016). African American experiences in healthcare: "I always feel like I'm getting skipped over". Health Psychology, 35(9), 987–995. [PubMed: 27175576]

Eller LS, Bunch EH, Wantland DJ, Portillo CJ, Reynolds NR, et al. (2010). Prevalence, correlates, and self-management of HIV-related depressive symptoms. AIDS Care, 22(9), 1159–1170. [PubMed: 20824569]

Fairfield KM, Eisenberg DM, Davis RB, Libman H, & Phillips RS (1998). Patterns of use, expenditures, and perceived efficacy of complementary and alternative therapies in HIV-infected patients. Archives of Internal Medicine, 158, 2257–2264. [PubMed: 9818806]

Furler MD, Einarson TR, Millson M, Walmsley S, & Bendayan R (2004). Medicinal and recreational marijuana use by patients infected with HIV. AIDS Patient Care and STDs, 18, 215–228. [PubMed: 15142352]

Halpin SN, Carruth EC, Rai RP, et al. (2018). Complementary and alternative medicine among persons living with HIV in the era of combined antiretroviral treatment. AIDS and Behavior, 22(3), 848–852. [published correction appears in AIDS Behav.] [PubMed: 28733920]

Institute of Medicine (US) Committee on the Use of Complementary and Alternative Medicine by the American Public (2005) Complementary and Alternative Medicine in the United States. Washington (DC): National Academies Press (US). 1, Introduction.

Kelso-Chichetto NE, Okafor CN, Harman JS, Canidate SS, Cook CL, & Cook RL (2016). Complementary and alternative medicine use for HIV management in the state of Florida: Medical Monitoring Project. Journal of Alternative and Complementary Medicine, 22(11), 880–886. [PubMed: 27631385]

Kemppainen JK, Holzemer WL, Nokes K, et al. (2003) Self-care management of anxiety and fear in HIV disease. Journal of the Association of Nurses in AIDS Care, 14(2), 21–29.

Kosiba JD, Maisto SA, & Ditre JW (2019). Patient-reported use of medical cannabis for pain, anxiety, and depression symptoms: systematic review and meta-analysis. Social Science & Medicine, 233, 181–192. [PubMed: 31207470]

Lalanne C, Armstrong AR, Herrmann S, Le Coeur S, Carrieri P, Chassany O, & Duracinsky M (2015). Psychometric assessment of health-related quality of life and symptom experience in HIV patients treated with antiretroviral therapy. Quality of Life Research, 24(6), 1407–1418. [PubMed: 25481725]

Littlewood RA, & Vanable PA (2008). Complementary and alternative medicine use among HIV-positive people: research synthesis and implications for HIV care. AIDS Care, 20(8), 1002–1018. [PubMed: 18608078]

Lorenc A, & Robinson N (2013). A review of the use of complementary and alternative medicine and HIV: issues for patient care. AIDS Patient Care and STDs, 27(9), 503–510. [PubMed: 23991688]

Oster AM, Wiegand RE, Sionean C, et al. (2011) Understanding disparities in HIV infection between black and white MSM in the United States. AIDS, 25(8), 1103–1112. [PubMed: 21505305]

Parker R, Stein DJ, & Jelsma J (2014). Pain in people living with HIV/AIDS: a systematic review. Journal of the International AIDS Society, 17(1), 18719. [PubMed: 24560338]

Saha S, Jacobs EA, Moore RD, & Beach MC (2010). Trust in physicians and racial disparities in HIV care. AIDS Patient Care and STDs, 24(7), 415–420. [PubMed: 20578909]

Towe SL, Horton OE, Martin BB, & Meade CS (2018). A comparison of motivations for marijuana use in HIV-positive and HIV-negative adults. AIDS and Behavior, 22(9), 2807–2814. [PubMed: 29704162]

Voss J, Portillo CJ, Holzemer WL, Dodd MJ (2007) Symptom cluster of fatigue and depression in HIV/AIDS. Journal of Prevention & Intervention in the Community, 33(1–2), 19–34. [PubMed: 17298928]

Ware M, Rueda S, Singer J, & Kilby D (2003). Cannabis use by persons living with HIV/AIDS: Patterns and prevalence of use. Journal of Cannabis Therapeutics, 2, 3–15.

Wilson NL, Azuero A, Vance DE, Richman JS, Moneyham LD, Raper JL, Heath SL, & Kempf M-C (2016). Identifying symptom patterns in people living with HIV disease. Journal of the Association of Nurses in AIDS Care, 27, 121–132.

Woolridge E, Barton S, Samuel J, Osorio J, Dougherty A, & Holdcroft A (2005). Cannabis use in HIV for pain and other medical symptoms. Journal of Pain Symptom Management, 29, 358–367. [PubMed: 15857739]

Table 1.

Participant characteristics (mean + 1 SD, or percentage), stratified by gender

	Overall N=259	Male n=178	Female n=81	Gender F/χ^2 (p)
Demographics				
Age (years)	46.4 (10.7)	46.6 (11.0)	45.9 (10.0)	0.27 (.604)
Sexual orientation				76.10 (.000)
Heterosexual	150	72	78	
Gay	71	71	0	
Bisexual	31	29	2	
Lesbian	1	0	1	
Other	6	6	0	
HIV status				
Years since diagnosis	12.1 (7.7)	12.5 (8.1)	11.3 (6.7)	1.41 (.236)
Viral load < 200 (%)	73.7	75.3	70.1	0.64 (.423)
CD4 cell count	545 (303)	534 (303)	572 (304)	0.70 (.405)
Substance Use (past 90 days)				
Marijuana use episodes	120 (231)	111 (211)	138 (270)	0.77 (.381)
Marijuana % therapeutic use[¶]	55.5 (37.8)	51.2 (37.4)	65.1 (37.2)	4.99 (.027)
Daily alcohol use (%)	7.7	6.7	9.9	5.69 (.224)
Any opioid use (%)	46.7	43.3	54.3	2.74 (.098)
Any cocaine use (%)	12.4	11.8	13.6	0.16 (.686)
Past 90-day symptom severity (0–3)				
Pain	1.46 (1.30)	1.31 (1.29)	1.78 (1.28)	7.27 (.007)
Fatigue	1.17 (1.17)	1.02 (1.12)	1.51 (1.23)	9.78 (.002)
Poor sleep	1.27 (1.29)	1.20 (1.26)	1.44 (1.34)	2.07 (.151)
Depression	1.09 (1.20)	0.98 (1.16)	1.32 (1.25)	4.48 (.035)
Anxiety	0.99 (1.17)	0.93 (1.15)	1.11 (1.19)	1.31 (.254)
Poor appetite	0.84 (1.08)	0.85 (1.09)	0.80 (1.08)	0.13 (.724)
Weight change	0.87 (1.15)	0.78 (1.08)	1.09 (1.26)	4.15 (.043)
Tingling in extremities	0.86 (1.15)	0.75 (1.10)	1.11 (1.21)	5.51 (.020)
Headache	0.78 (1.07)	0.72 (1.03)	0.90 (1.16)	1.51 (.220)

[¶] only includes 169 total marijuana users (117 M, 52 F).

Table 2.

Most frequently endorsed symptoms and 3 most frequent self-treatments (number and group proportion of those endorsing), stratified by gender

	Overall *N*=259	Male *n*=178	Female *n*=81	Gender χ^2 (*p*)
Pain				
Endorsed	156 (.60)	98 (.55)	58 (.72)	6.37 (.012)
Treated				
Medicine	87 (.56)	50 (.51)	37 (.64)	
Marijuana + other[¶]	23 (.15)	15 (.15)	8 (.14)	
Nothing done	12 (.08)	8 (.08)	4 (.07)	
Fatigue				
Endorsed	150 (.58)	95 (.53)	55 (.68)	4.82 (.028)
Treated				
Relax/sleep	44 (.30)	27 (.29)	17 (.31)	
Nothing done	37 (.25)	23 (.25)	14 (.26)	
Other	23 (.15)	15 (.16)	8 (.15)	
Poor sleep				
Endorsed	142 (.55)	94 (.53)	48 (.59)	0.94 (.334)
Treated				
Medicine	45 (.32)	28 (.30)	17 (.35)	
Nothing done	45 (.32)	33 (.36)	12 (.25)	
Marijuana	15 (.11)	10 (.11)	5 (.10)	
Depression				
Endorsed	135 (.52)	87 (.49)	48 (.59)	2.41 (.121)
Treated				
Nothing done	30 (.22)	21 (.24)	9 (.19)	
Medicine	29 (.22)	16 (.18)	13 (.27)	
Psychosocial	18 (.13)	14 (.16)	4 (.08)	
Anxiety				
Endorsed	124 (.48)	82 (.46)	42 (.52)	0.75 (.388)
Treated				
Nothing done	27 (.22)	18 (.23)	9 (.21)	
Medicine	20 (.16)	12 (.15)	8 (.19)	
Marijuana	14 (.12)	10 (.13)	4 (.10)	
Poor appetite				
Endorsed	111 (.43)	78 (.44)	33 (.41)	0.22 (.642)
Treated				
Marijuana	64 (.58)	45 (.58)	19 (.58)	
Other (dietary)	21 (.19)	14 (.18)	7 (.21)	
Nothing done	9 (.08)	5 (.06)	4 (.12)	
Weight change				
Endorsed	110 (.43)	71 (.40)	39 (.48)	1.56 (.212)

	Overall N=259	Male n=178	Female n=81	Gender χ^2 (p)
Treated				
Other (dietary)	36 (.33)	28 (.39)	8 (.21)	
Nothing done	33 (.30)	14 (.20)	19 (.50)	
Activity/exercise	12 (.11)	10 (.14)	2 (.05)	
Tingling in extremities				
Endorsed	108 (.42)	65 (.37)	43 (.65)	6.29 (.012)
Treated				
Nothing done	51 (.47)	33 (.51)	18 (.42)	
Medicine	16 (.15)	11 (.17)	5 (.12)	
Home remedies	14 (.13)	4 (.06)	10 (.23)	
Headache				
Endorsed	106 (.41)	70 (.39)	36 (.44)	0.60 (.437)
Treated				
Medicine	67 (.63)	43 (.61)	24 (.67)	
Nothing done	11 (.10)	10 (.14)	1 (.03)	
Marijuana	8 (.08)	7 (.10)	1 (.03)	

[¶]Excludes 8 participants (5 male) who only used marijuana.