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“God put weed here for us to smoke”: A mixed methods study of religion and spirituality among adolescents with cannabis use disorders

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Abstract

Background: A growing literature on adults with substance use disorders (SUD) suggests that religious and spiritual processes can support recovery, such that higher levels of religiosity and/or spirituality predict better substance use outcomes. However, studies of the role of religion and spirituality in adolescent SUD treatment response have produced mixed findings, and religiosity and spirituality have rarely been examined separately.

Methods: The present study examined religiosity and spirituality as predictors of outcomes in an outpatient treatment adolescent sample ($N = 101$) in which cannabis was the predominant drug of choice. Qualitative data were used to contextualize the quantitative findings.

Results: Results showed that higher levels of spirituality at post-treatment predicted increased cannabis use at 6-month follow-up ($\beta = .237, p = .043$), whereas higher levels of baseline spirituality predicted a lower likelihood of heavy drinking at post-treatment ($OR = .316, p = .040$). Religiosity did not predict substance use outcomes at later timepoints. When asked to describe the relation between their religious/spiritual views and their substance use, adolescents described believing that they had a choice about their substance use and were in control of it, feeling more spiritual when under the influence of cannabis, and being helped by substance use.

Conclusions: Together, findings suggest that for adolescents with SUD, religion and spirituality may not counteract the use of cannabis, which may be explained by adolescents' views of their substance use as being consistent with their spirituality and under their control.

Keywords

adolescent; cannabis; religion; spirituality; mixed methods

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Introduction

There have been significant transitions over the past several decades in the United States in laws regulating the possession, sale, and use of medical and recreational cannabis. At the time of this writing, cannabis possession and use has been legalized for adults in eight states and Washington, D. C., and medical marijuana is permitted in over half of states.¹ While minors cannot legally use recreational cannabis, the majority of youth believe that regular cannabis use is not highly risky.² For young people, however, heavy cannabis use increases the risk for problems with cognitive functioning, dependency, and mental health issues.³⁻⁵ It is crucial to understand the factors that support recovery from cannabis use disorders (CUD) among young people, who are vulnerable to the detrimental effects of chronic, heavy cannabis use. This study examines religiosity and spirituality as predictors of substance use among adolescents with primarily CUD, as these factors have been shown to protect adolescents from problematic substance use and to predict improved outcomes among adults with substance use disorders (SUD).

Religion, spirituality, and recovery from SUD

Religion and spirituality are both distinct and overlapping,^{6,7} highlighting the need to attend to both constructs. Religion is usually described as a socially-organized system of beliefs and practices that includes identification with a religious community, participation in religious activities or rituals, and cultivation of a connection to the transcendent or divine.^{7,8} Spirituality is often seen as one's personal experience of or relationship to the transcendent.⁹ Following a religion helps to cultivate spirituality, but it is possible for individuals to develop spiritually without participating in religious practices.¹⁰

Religion and spirituality are thought to aid recovery from SUD by helping to rebuild purpose or connection to core values, stimulating positive cognitive and affective changes, or increasing social support.¹¹⁻¹³ In Alcoholics Anonymous (AA), recovery is thought to occur as the result of a profound shift in belief systems and attitudes (i.e., "spiritual awakening")¹⁴ as a result of following the 12-step program. Involvement in organized religion may protect young people from initiating drug and alcohol use by providing moral directives, coping skills, and inclusion in a supportive community.¹⁵

Prior research on religion, spirituality, and substance use

Religiosity has an inverse relationship with substance use among adolescents, such that more religious adolescents tend to use substances less and are less likely to experience SUD, both concomitantly¹⁶⁻²¹ and prospectively.^{22,23} Identified mechanisms include increased self-control,²³ disapproving attitudes toward alcohol,²⁰ buffering against stressful events,²⁴ and greater integrity, morality, and meaning.²⁵ Research with adults with SUD (largely alcohol or opioid use disorders) has shown that better substance use outcomes are predicted by greater spirituality²⁶⁻²⁸ or religiosity,²⁹⁻³³ or by increasing religiosity/spirituality over time.^{34,35}

Findings from research on adolescents with SUD have been mixed. Three studies of a single adolescent residential sample have obtained somewhat different findings. One study found

that lifetime religious practices at intake predicted fewer positive toxicology screens and decreased cravings during treatment,³⁶ whereas another study with largely the same sample found that baseline religiosity had no relation to toxicology screens or cravings during treatment.³⁷ A third study³⁸ found that *increasing* spirituality (but not religiosity) during treatment predicted abstinence. Other studies have found that religiosity or spirituality inconsistently predict hypothesized outcomes.^{39–41}

In the absence of qualitative data, the inconsistent results in adolescent studies are difficult to interpret. Additionally, no study has examined the impact of religion and spirituality on cannabis use specifically. Spirituality and religiosity have been directly compared in only one adolescent study.³⁸ The present study addresses these gaps by examining religiosity and spirituality as predictors of cannabis, alcohol, and other drug use in a sample of adolescents in low-intensity outpatient treatment using quantitative and qualitative methods.

Hypotheses

We hypothesized that greater religiosity and spirituality, measured at baseline and 3-month follow-up (i.e., post-treatment), would predict improved substance use outcomes (i.e., less cannabis use, lower likelihood of heavy drinking, lower likelihood of other drug use) at 3- and 6-month follow-ups, respectively. We contextualize quantitative findings by examining narratives from a subsample of adolescents regarding the connections between their religiosity, spirituality, and substance use.

Method

Participants

Participants were from the *Recovery from Addictions among Youth Study* (RAYS), which included 101 adolescents between the ages of 14 and 21 who met past-year Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR⁴²) criteria for SUD and were appropriate for low-intensity outpatient treatment for any class of substance (e.g., cannabis, alcohol; see Table 1).

Procedure

RAYS was a two-stage treatment development study. All procedures in the present study were conducted in compliance with the Partners Human Research Committee and the Suffolk University Institutional Review Board. In order to participate in the study, participants under age 18 needed to have a parent/guardian who was willing to consent to their participation; these participants separately gave their assent to take part. Participants over age 18 provided their consent to participate in the study. In both cases, study staff thoroughly discussed study procedures, risks, and benefits with potential participants in order to inform their decision about whether to participate. In Stage 1a (2011–12; $n = 42$), a new Twelve-Step Facilitation (TSF) treatment manual was developed.⁴³ Participants in this stage received TSF, except for six participants who dropped out before receiving treatment. In Stage 1b (2013–15; $n = 59$), the randomized pilot study, TSF was tested against Motivational Enhancement Therapy/Cognitive-Behavioral Therapy (MET/CBT).⁴⁴ Thirty participants were randomized to MET/CBT and 29 to TSF. Two participants in each

condition dropped out before receiving treatment. Treatment for all participants consisted of two individual and eight group sessions. In the parent study,⁴⁵ abstinence from substance use increased equally in both conditions during and following treatment. Participants completed baseline and two post-treatment assessments (i.e., 3- and 6-month follow-ups¹). Qualitative interviews were completed at the final follow-up (6-month for Stage 1a, 9-month for Stage 1b).

Measures

Religiosity.—At all timepoints, participants completed the past 3-month subscale of the Religious Background and Behavior (RBB) scale.⁴⁶ Items included participants' religious self-identification and ratings of how often they engaged in six religious activities (e.g., “prayed,” “attended worship services”) on a 0 to 7 scale. This measure has been shown to have good internal consistency, excellent test-retest reliability, and good convergent validity with religious service attendance, meaning seeking, and purpose in life.⁴⁶ Internal consistency was acceptable across timepoints (α s = .81-.85).

Spirituality.—Participants completed the Spiritual Transcendence Scale-Short Form (STS-SF)⁴⁷ at all timepoints, a 9-item self-report measure of spirituality. Items reflect prayer fulfillment, connectedness, and universality, with items rated on a 1 to 5 scale. The STS-SF has been found to be reliable and structurally valid.⁴⁷ Internal consistency in the present sample was acceptable (α s = .76-.79).

Substance use.—At each timepoint, the Timeline Follow Back (TLFB)⁴⁸ and Form-90⁴⁹ were used to examine substance use frequency and timing during the past 90 days (at baseline) or since the last assessment (at follow-ups). Participants marked their substance use on a calendar, which was used to calculate: (1) percent days used cannabis (PDC), (2) percent heavy drinking days, or the percentage of days on which the participant consumed five or more drinks (four for females) in a single day, and (3) other drug use, or the number of days on which a participant used another substance (e.g., amphetamines, opiates). The TLFB is a valid measure of recent drug use, as indicated by high consistency between self-reported and biologically verified substance use.⁵⁰

Virtually all participants (97%) used cannabis at least once in the past 90 days at baseline, with 80% using at least once/week, and 47% using 6–7 days/week. As a substantial proportion of the sample reported no heavy drinking (baseline: 34.7%; 3-month: 42.5%; 6-month: 43.5%) or other drug use (baseline: 45.5%; 3-month: 58.9%; 6-month: 55.1%) at each timepoint, these variables were dichotomized to represent the presence or absence of a heavy drinking day (HDD) or drug use-other (DUO).

Qualitative interviews.—At the final follow-up, 20 participants completed a 20–30 minute qualitative interview with the first author. Participants completed quantitative and qualitative assessments with different interviewers to reduce bias in reporting. Interviewees were those who completed the final follow-up in person during a pre-determined data

¹Participants in Stage 1b also completed a 9-month follow-up. As participants in Stage 1a did not complete a 9-month follow-up, only data from baseline to 6-month follow-up are utilized, in order to maximize the sample size.

collection period that spanned Stage 1a ($n = 8$) and Stage 1b ($n = 12$). Interview completers did not differ at baseline from the rest of the sample on age, gender, dependence severity, presence of a comorbid psychiatric diagnosis, or the primary predictor (i.e., RBB, STS) or outcome (i.e., PDC, HDD, DUO) variables.

The interview was created for the present study using a standardized open-ended format.⁵¹ It addressed adolescents' perceptions of the process of changing their substance use (or not), their religious and/or spiritual views (or lack thereof), and their perceptions of how their religious and/or spiritual views impacted their substance use/attempts to change substance use (or not). Interviews were audio-recorded with permission of participants and transcribed verbatim (omitting identifying information).

Follow-up rates and attrition

Seven participants withdrew from the study, leaving 94 participants who were eligible for follow-up. Follow-up rates were 77.7% ($n = 73$) at 3 months and 72.3% ($n = 68$) at 6 months. Non-completers did not differ from completers on age, gender, dependence severity, presence of a comorbid psychiatric diagnosis, or primary predictor or outcome variables. However, participants in Stage 1a were less likely to complete post-treatment assessments (64.3% at 3 months, 54.8% at 6 months) than participants in Stage 1b (88.5% at 3 months, 86.5% at 6 months, $ps < .01$), reflecting increased emphasis on retention during the trial phase.

Quantitative analysis plan

Multiple linear regression² was used to test the hypothesis that greater baseline and 3-month levels of religiosity and/or spirituality would predict lower PDC at 3- and 6-month follow-up, respectively. Logistic regressions were used to test the hypothesis that greater baseline and 3-month religiosity and/or spirituality would predict lower HDD and DUO at 3- and 6-month follow-up, respectively. Final models controlled for baseline levels of outcome variables, age (to account for the wide age range), and study stage (which predicted dropout).³ Covariates were entered in Stage 1, followed by predictor variables in Stage 2. Analyses were conducted using IBM SPSS Statistics version 22.

Qualitative text selection and analysis

The first author read interview transcripts and selected sections where participants discussed the relation between their religious/spiritual views and substance use. The first author coded the 11 most content-rich interviews using line-by-line coding in a grounded theory framework.⁵² The first author wrote memos during coding about emerging commonalities/themes. Line-by-line coding and memos were used to identify 11 focused codes capturing how participants described the relation between their religiosity/spirituality and substance

²Growth models were considered as a data analytic method, as these would allow for an examination of the impact of religiosity and spirituality on the growth trajectories of substance use over the 6-month period. However, due to the small sample size, there were problems with model convergence when predictors were added to the models. Thus, simpler models (i.e., regressions) were identified as being more appropriate for this sample.

³Separate regression analyses were run controlling for gender, treatment condition, and number of treatment sessions attended. These covariates did not significantly predict outcomes and inclusion of these covariates did not meaningfully alter the pattern of results. As such, these results are not presented.

use. These focused codes were then applied to transcripts that were not initially coded. Focused codes were refined during this process, constituting the first draft of the codebook. No new codes were added.

The initial codebook was used by two independent coders on six randomly selected transcripts. One code could not be applied reliably and two codes were redundant with the quantitative measures of spirituality and religiosity. Eight focused codes were retained (see Table 2). The inter-rater reliability for these eight codes across the six selected transcripts was $K = 0.754$ ($SE = 0.103$, 95% CI: 0.553–0.955), indicating 90% agreement. Coding discrepancies were resolved through discussion.

Results

Descriptive results

An examination of the baseline bivariate non-parametric correlations between predictor and outcome variables revealed that religiosity and spirituality were positively correlated ($r = .60$, $p < .01$), but neither was correlated with outcome variables ($r_s = .03-.15$, $p_s > .05$). There were no significant correlations between PDC, HDD, or DUO ($r_s = .05-.17$, $p_s > .05$).

Regression analyses

Religiosity at baseline or 3 months did not predict subsequent outcomes (see Table 3 and Supplemental Tables 1-2). Baseline spirituality did not predict percent days cannabis use (PDC) at 3 months; however, higher levels of spirituality at 3 months predicted *increased* PDC at 6 months, controlling for age, stage, and PDC at 3 months (see Table 3). In the heavy drinking models, baseline spirituality predicted a *decreased* likelihood of any post-treatment heavy drinking days (HDD) (see Supplemental Table 1). For each 1-point decrease on the STS at baseline, individuals were 3.34 times more likely to report HDD at follow-up (i.e., $1/OR = 1/.299 = 3.34$). Spirituality did not predict drug use-other (DUO) at either timepoint (see Supplemental Table 2).

Qualitative analyses

Qualitative data were explored in order to explain quantitative findings. The guiding research question was: how do adolescents explain the relation between their religious and/or spiritual views and their substance use? Table 2 contains a summary of focused codes that emerged from the data, along with exemplar quotations for each code. We describe the qualitative findings in more detail below (additional quotations illustrating each code can be found below and in Supplemental Table 3).

Qualitative results.

Being in control of substance use.—The most common theme was *Choice/Control*, where individuals described having control, knowledge, or autonomy over their substance use (usually cannabis use). One participant stated:

I think me smoking are my choices the same way I talk to myself about my life and what I choose to do. There's nobody on my shoulder telling me what's Christian and what's right and what's wrong.

Several participants stated that they did not need or want God's help with their cannabis use:

I've prayed in times of...if my parents were fighting or something like that, but never to ask for help about cutting down on [substance use]... when I pray it's usually things that are like beyond my control... rather than something that I know that I can do on my own.

Benefiting from cannabis use.—Individuals described the benefits and relative harmlessness of cannabis use, as described in the codes *More Spiritual*, *Drug Help*, and *Cannabis*. Feeling more spiritual through substance use (usually cannabis) included statements such as:

For me, spirituality and smoking weed are, like, interconnected, in the sense that smoking induces, like, these deep thoughts in me that really make me just question everything about life.

When you're sober there could be multiple things that factor against you tryin' to... connect with whatever spirit or religion...because if you're sober you could be stressed or other emotions could be affecting your ability to be spiritual.

Some participants mentioned *Being Less Spiritual* when under the influence, providing a counterpoint to the above statements. One participant stated:

[When on drugs] you're just kinda glossed over. You can't really be connected with God if you're not connected to anything here.

Some participants emphasized the naturalness of cannabis and elevated its status relative to alcohol and other drugs.

Marijuana's somethin' that doesn't kill you at all, like directly it doesn't kill you, so it's like, how is this illegal, but things that kill you directly aren't?

Marijuana is a drug, right? But it should be the only drug...Because it is just like any other natural substance on this planet. And we should use those substances as our catalyst to reach that higher plane of consciousness.

Alcohol was described as inconsistent with participants' spiritual views. One participant stated:

Like my spiritual views, I kinda view drinkin' as something bad...Basically, I have sorta like the same kinda like Rastas' beliefs in drinkin', like, it's sent there as a propaganda thing for the government to make you stupider.

Similarly, four participants raised issues of *Drug Harm*. One participant stated:

That's all smoking [marijuana] does for me. It messes up my head.

Leaving the church.—A few participants connected the onset of cannabis use to *Rejecting Religion*. For instance:

When school started, that's when everyone was [smoking marijuana]. I decided to say yes and then get started and I stopped going to church basically the same time.

See, [marijuana] did a lot when I was like 14. It gave me stuff, that's why, you know, I was all rebellious and realized that God isn't real.

A number of others spoke about rejecting the religions in which they were raised during their pre-teen or early teen years, without directly connecting this to substance use.

Not seeing a connection.—One-quarter of interviewees denied all connections between their religious or spiritual views and their substance use or attempts to change their substance use. These individuals were no less religious or spiritual at baseline than individuals who reported seeing a connection ($p > .20$). However, these individuals tended to be younger ($M = 16.93$, $SD = 1.51$ vs. $M = 18.62$, $SD = 1.84$, $p = .08$) and less likely to recognize a drug/alcohol problem at baseline (20.0% vs. 73.3%, $p = .04$) than those who did not deny connections. They had lower percent days abstinent at baseline ($M = 4.00$, $SD = 3.90$) than individuals who did not deny connections ($M = 29.41$, $SD = 36.75$, $p = .02$).

Discussion

Among young people in outpatient SUD treatment, religiosity showed no relation to subsequent cannabis use, heavy drinking, or other drug use. Spirituality showed mixed results, such that spirituality at post-treatment predicted *increased* cannabis use at the subsequent follow-up and baseline spirituality predicted a *decreased* likelihood of heavy drinking at post-treatment. How can the qualitative data help explain these findings, and what can they tell us about the treatment of adolescents with SUD?

Being in control of substance use

Adolescents' statements about being in control of cannabis use suggest they may be at an early stage of SUD, where they believe their use is under their control and, thus, not something for which they need to seek help through spiritual or religious resources. These attitudes are in contrast to the spiritually-based 12-step recovery model, in which the first three steps are admitting powerlessness over the substance, believing that a higher power can help, and turning one's "life and will" over to the higher power.⁵³ While there is substantial evidence that young people can benefit from 12-step participation,⁵⁴⁻⁵⁶ adolescents with CUD or who hold the choice/control view may experience discomfort with 12-step philosophy. Clinicians who facilitate 12-step attendance among adolescent clients can inquire about how the adolescent views their use, discuss conflicts in perspectives, and recommend 12-step meetings that may be more relatable to younger patients' specific primary substance (e.g., Marijuana Anonymous).

Benefiting from cannabis use

The codes reflecting the benefits of cannabis use (*More Spiritual*, *Drug Help*, and *Cannabis*) shed light on *why* these young people feel in control of their use. They may not see their substance use, particularly cannabis use, as problematic because they believe they are benefitting from it and that it is normative and consistent with their spirituality. This could

be one reason why post-treatment spirituality predicted increased cannabis use at the final follow-up. Feeling more spiritual when high may be a powerful reinforcer of substance use that clinicians and researchers may not think to assess.

Adolescents' less favorable attitudes toward alcohol can help explain why baseline spirituality predicted a lower likelihood of heavy drinking at 3 months. Participants did not proclaim alcohol (or other drugs) to be healthy, a gift from God, or natural, as they did with cannabis. Young people who value spirituality may see alcohol as an impediment to this, and be less likely to drink heavily. Future research could compare the predictive value of religiosity and spirituality in adolescents whose drug of choice is cannabis, versus alcohol or other drugs, to see if this differential effect holds up.

Leaving the church

The *Rejecting Religion* code helps explain why religiosity did not predict substance use outcomes, as it suggests that adolescents may no longer be experiencing the protective effects of religion. Rejecting religion may put adolescents at risk for initiating substance use, as they lose social support and moral directives. Substance use may facilitate the rejection of religion, as described by some participants, by causing adolescents to question what they have been told. Other factors, such as a desire to rebel, changing social networks, or valuing autonomy, may underlie both processes. Future mixed methods research could target adolescents who are struggling with their religious beliefs to better understand factors that put them at risk for SUD.

Not seeing a connection

One-quarter of interviewees denied connections between religion, spirituality, and substance use. Indeed, there are many other salient factors that influence adolescent substance use. Qualitative studies have found that adolescents identify many reasons for substance use following treatment, related to the benefits of using (e.g., to feel good/have fun, to cope with stress) and the influence of peers (e.g., because friends do it).⁵⁷⁻⁵⁹ Quantitative research has confirmed that peer substance use is an important predictor of substance use among adolescents.⁶⁰⁻⁶²

Limitations

The present study included a relatively small sample of adolescents who were mainly using cannabis. As substantial proportions of the sample did not use other substances, alcohol and other drug use variables were dichotomized, thereby reducing power to detect relations between predictor and outcome variables.⁶³ For Stage 1b participants, qualitative interviews were completed later than the quantitative assessments (i.e., at 9-month follow-up); this was not the case for Stage 1a participants. Despite this, a major strength of this study is its novel mixed methods design, which can shed light on mixed findings reported in prior studies.

Conclusions

Qualitative findings in the present study help to explain why religion did not influence adolescents' outcomes following SUD treatment, whereas spirituality had different effects depending on the substance. Adolescents, particularly those who are primarily using

cannabis within a societal context where cannabis is increasingly accepted, may view their substance use as being a choice and thus not something for which they need to seek help through spiritual or religious resources. Furthermore, cannabis may be seen as a way to get *more* in touch with God or to deepen one's sense of spirituality, in addition to providing other benefits and being more acceptable than other substances. This suggests a need to evaluate outcomes for different primary substances separately and to assess the function of the primary substance. These viewpoints provide valuable information to clinicians and researchers who know firsthand the challenges of facilitating and investigating recovery from SUD among adolescents.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Baseline demographics (N = 101).

	<i>M (SD) or %</i>
<i>Age</i>	17.4 (1.6)
<i>Gender (% male)</i>	74.3
<i>Race (%)</i>	
White	60.4
Black	14.9
Multiracial	9.9
Hispanic	9.9
Other	4.9
<i>Who do you live with? (%)</i>	
One biological parent ^a	43.6
Biological parents	37.6
Other ^b	12.9
Adoptive parents	5.9
<i>Religious background (%)</i>	
None	29.7
Christian	25.7
Catholic	24.8
Other	9.9
Jewish	6.9
Protestant	3.0
<i>DSM-IV-TR SUD diagnoses^c (%)</i>	
Cannabis abuse	28.7
Cannabis dependence	61.4
Alcohol abuse	14.9
Alcohol dependence	25.7
Opiate abuse	5.3
Opiate dependence	6.9
<i>Drug of choice (%)</i>	
Cannabis	77.2
Alcohol	9.9
Hallucinogens	4.0
Opiates	4.0
Stimulants	3.0
Other	1.9
<i>Number of sessions completed (max = 10)</i>	
Mean (SD)	6.0 (3.8)

^aIncludes one parent (33.7%) and one biological parent and stepparent (9.9%)

^bIncludes other (7.9%), other relatives (3.0%), and own residence (2.0%)

^cPercentages add up to >100% because categories are not mutually exclusive

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Table 2

Codes for participants' descriptions of the connections between spirituality, religiosity, and substance use.

Abbreviation	Focused Code	Use when:	Exemplar Quotation	% of interviews
<i>Choice/Control</i>	<i>Making own choices/Being in control of substance use</i>	Participant states that they are in control of their substance use, know what to do about it, or get to make up their own mind about it	"First of all, in order to get help from God, you have to want it for yourself first. I don't want that for myself, so I don't think it would work out. Like if I wanted to stop smoking and I asked God to help me, then I know for a fact I could stop. But I have to be, I have to be willing to do it in order for it to work."	55
<i>MoreSpir</i>	<i>Being (more) spiritual through substance use</i>	Participant describes feeling spiritual and/or engaging in spiritual behaviors when under the influence of a substance	"If I'm high and I'm alone, I'll talk to God, like, much more than I would being all alone and sober, 'cause if I'm high, there are a lot of things going through my mind, I have a lot of questions."	35
<i>DrugHelp</i>	<i>Being helped by substance use</i>	Participant describes benefit(s) of substance use	"When I got high, I realized, like, I felt so good, right, that praying to God couldn't do anything to make me feel as good as I just felt."	25
<i>Deny</i>	<i>Denying connection(s)</i>	Participant denies that there is a connection between their religious/spiritual views and their substance use	"I don't know what it is that makes me want to smoke, but it's nothing to do with that and religion doesn't make me not want to smoke, so I don't I don't see a connection at all."	25
<i>DrugHarm</i>	<i>Being harmed by substance use</i>	Participant describes negative impact(s) of substance use	"The other drugs [other than LSD and mushrooms] make me feel disconnected because I know I'm under the influence like pretty much all the time... if you're consistently on drugs then you're just you're not even really seeing life anymore."	20
<i>Cannabis</i>	<i>Portraying cannabis as natural/healthy</i>	Participant describes cannabis/marijuana/weed/pot as natural, healthy, or good	"I think God put weed here for us to smoke. I mean, it's a plant, you know. God made plants. It's not a man-made substance, it's a plant. So I think, I think weed is in Heaven too... I don't think there's nothing wrong with it at all. Like if God didn't want us using it, He wouldn't have put the plant here."	15
<i>RejectRelig</i>	<i>Rejecting religion while accepting substance use</i>	Participant states that they started using substances around the same time that they rejected religion, the church, or God	"I had the thoughts of changing my religion a little bit before I started smoking... Then when I started smoking, I actually worked up the courage to actually say something to my family about it. Like, 'I don't think Catholic is, like, all there is to life.'"	15
<i>LessSpir</i>	<i>Being less spiritual when high</i>	Participant describes substance use as an impediment to spiritual engagement	"I think smoking makes me more not interested in, I don't want to call it nonsense, but some people turn it into nonsense like you know talking about their religion."	15

Table 3

Hierarchical regressions with religiosity and spirituality as predictors of cannabis use (N = 73).

Outcome	Predictors	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	<i>F for R</i> ²
PDC 3m						
	Step 1					
	Age	.485	.159	.266***		
	Stage	-6.925	6.360	-.095		
	PDC 0m	.604	.085	.624***	.483	21.490***
	Step 2					
	RBB 0m	4.236	3.209	.145		
	STS 0m	-8.977	5.364	-.185	.022	1.476
PDC 6m						
	Step 1					
	Age	.113	.197	.057		
	Stage	-6.403	7.504	-.081		
	PDC 3m	.660	.110	.606***	.415	15.371***
	Step 2					
	RBB 3m	-4.806	3.953	-.142		
	STS 3m	11.888	5.766	.237*	.037	2.126

Note. RBB = Religious Background and Behavior scale (past three month subscale); STS = Spiritual Transcendence Scale; PDC = Percent days used cannabis

*
 $p < .05$.

 $p < .001$.