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Identity as a Cannabis User is Related to Problematic Patterns of Consumption among Emerging Adults

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Abstract

Introduction—Cannabis use has become a more normative, socially-acceptable behavior in the United States, despite research indicating that frequent use may become problematic for some individuals. Emerging adulthood, a time of identity development, is the most common time for cannabis use. Cannabis self-concept, or one's identification with cannabis as part of their personality or identity, is one factor that may influence use behavior. This study extends previous research that reported a link between self-concept, motivational factors, and normative beliefs by evaluating relationships between cannabis self-concept, motives for use, motivation to change, perceived descriptive norms, as well as cannabis-related outcomes (use, using alone, and cannabis-related problems).

Methods—Emerging adults who used cannabis in the previous month ($n=345$, 53.9% male, mean age 21.0, 67.5% Non-Latino White) were recruited from a community sample for a health behaviors study. Participants were assessed for explicit cannabis self-concept, frequency of use, problems associated with use, motives for use, motivation to change, and normative beliefs about others' use.

Results—Participants reported using cannabis on an average of 17.9 ($SD=11.1$) days of the previous month. Correlational analyses revealed that cannabis self-concept was positively associated with frequency of use, use-related problems, several motives for use, descriptive norms, and with using cannabis alone. Multivariate analyses revealed that rates of use, problems, and social and enhancement motives were independently and positively associated ($p < .05$) with

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Contributors

MS, DH, and CC conceived, designed, and implemented the parent trial. CB and AA conceived the aims of this paper and wrote the initial draft. BA performed statistical analyses. All authors discussed the results and contributed to and have approved the final manuscript.

Conflict of interest

No conflict declared.

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cannabis self-concept, while self-concept was negatively associated with desire to reduce cannabis use.

Conclusions—Cannabis self-concept may be a marker for more problematic patterns of use.

Keywords

Cannabis identity; emerging adulthood; motivation; normative beliefs

1. Introduction

Cannabis use is highly prevalent in emerging adulthood, second only in rates of use to alcohol (Substance Abuse and Mental Health Services Administration, 2017). Indeed, emerging adulthood represents the most common time period of cannabis use: over half of emerging adults, aged 18–25, report lifetime cannabis use (51.8%), one-third report past month use (33.0%), and 20.8% report past week use. Among emerging adults, 5.0% meet diagnostic criteria for a cannabis use disorder in the past year (DSM-IV criteria, Substance Abuse and Mental Health Services Administration, 2017). Regular (i.e., daily or near-daily) cannabis use, particularly when initiated from adolescence or young adulthood, is associated with a host of negative consequences, such as neurocognitive deficits (Meier et al., 2012), school dropout (Silins et al., 2014), adverse mental health outcomes (McGrath et al., 2010; Silins et al., 2014), decreased self-esteem, and problems with family and friends (Stephens et al., 2002). With recent recreational legalization in Alaska, California, Colorado, Maine, Massachusetts, Nevada, Oregon, and the District of Columbia, and with increased legalization for medical use, there is emerging evidence that cannabis has become more normative in the United States (see Sznitman and Taubman, 2016 for a discussion). Most Americans (57%) now support the legalization of cannabis, particularly individuals between the ages of 18–35 (71%) (Geiger, 2016). Along with this trend of legalization, perception of risk for cannabis use has decreased and perception of approval by others has increased (Carliner et al., 2017; Kosterman et al., 2016; Pacula and Smart, 2017).

Emerging adults are transitioning into adulthood during this period of shifting views as cannabis becomes more accepted for both medical and recreational purposes. Emerging adulthood is a period of time when individuals more firmly establish their identity, as they gain independence and transition into different roles (e.g., as an employee, as a college student, as a life partner) (Arnett, 2015, 2000). Identity formation – a sense of self-concept – is influenced by these factors, primarily resulting from an increased independence to engage in new and different behaviors and new peer groups (e.g., Arnett, 2000; Zarrett and Eccles, 2006). Substance use is one behavior that can impact or influence self-concept. Despite the growing acceptance of cannabis use among emerging adults, the risk of negative consequences remain, and it is important to determine what factors may impact problematic patterns of cannabis use: cannabis self-concept (i.e., an individual's identification with cannabis as part of their personality or part of their identity) is one such factor.

Self-concept may convey important information regarding an individual's risk for problematic use. The theory of planned behavior (TPB; Ajzen, 1991), which provides a theoretical background to the examination of substance-specific self-concept, asserts that

normative beliefs, attitudes, and past behavior predict future behavior. In an examination of the relationship between self-concept and the theory of planned behavior, Conner and colleagues (1999) found that the addition of self-concept to TPB-relevant variables (norms, attitudes, past behaviors) explained additional variance in alcohol use. Alcohol self-concept has been studied most commonly with college students (see Lindgren et al., 2017 for a review) and has been associated with rates of alcohol use (Foster et al., 2014; Foster, Yeung, et al., 2014; Foster, Young, et al., 2014; Foster, 2014; Foster et al., 2017; Lindgren, Ramirez, Namaky, et al., 2016; Lindgren et al., 2016) and alcohol-related problems (Foster et al., 2014; Foster, Young, et al., 2014; Foster et al., 2017; Lindgren, Ramirez, Namaky, et al., 2016; Lindgren et al., 2016). Additionally, alcohol self-concept is higher among individuals with more severe drinking patterns (Rinker and Neighbors, 2015). Similarly, tobacco smoking self-concept is associated with rates of use and problems among adolescents and adults (Falomir and Invernizzi, 1999; Hertel and Mermelstein, 2013; Shadel et al., 1996; Shadel and Cervone, 2011). Therefore, viewing alcohol or tobacco use as part of one's identity or personality appears to be a marker for more high-risk patterns of use.

Self-concept is also associated with other motivational and cognitive factors that influence patterns of substance use: motives for substance use, motivation to change substance use, and normative beliefs. The addition of alcohol self-concept (i.e., drinking identity) to a model including variables such as norms and motives adds significant variance explained in alcohol use and problems (Lindgren, Ramirez, Olin, et al., 2016), suggesting that they are related yet distinct constructs. Several studies of alcohol use have reported that self-concept is related to motives for use, most notably the motive for substance use of coping with negative affect (Dibello et al., in press; Foster, 2014; Lindgren et al., 2013). Additionally, results in tobacco literature suggest that self-concept as a user is negatively related to intention to quit using (Falomir and Invernizzi, 1999; Tombor et al., 2013): thus, the more individuals internalize substance use as part of their identity, the less likely they are to be motivated to change their use. Emerging adults may be particularly influenced by perception of behavior of friends: for example, cannabis use rates are associated with the perceived descriptive norms of close friends (Buckner, 2013). Given the importance of friend groups in identity formation, having friends who consume cannabis and believing that use is normative among others of the same age group may be significantly related to one's cannabis self-concept.

While social use of cannabis in emerging adulthood is common, solitary use (i.e., using while alone) may also be a marker for more problematic patterns of use. Using cannabis alone is a distinguishing factor between dependent and non-dependent sample (Noack et al., 2011; Van der Pol et al., 2013). In the alcohol literature, drinking alone is associated with more negative consequences of use, less motivation to reduce use, patterns of negative affect, and using for the motive of coping with negative affect (Christiansen et al., 2002; Cooper et al., 2016; Creswell et al., 2014, 2015). Despite evidence of a relationship to factors that have been studied in the self-concept literature (i.e., problems, motivation), no known study has evaluated the link between cannabis self-concept and using alone.

Cannabis self-concept has not been explicitly studied, with two known exceptions. Results from a descriptive study of college students from 11 universities reported that cannabis self-

concept was correlated with rates of cannabis use, perception of cannabis use approval, several motives for cannabis use, and with use-related consequences (Pearson et al., 2017). However, overall cannabis self-concept was low among users. This study included only college students and, given that the goal was to describe cannabis use and related constructs, the study included non-users in evaluations of relationships. In another study, in-depth interviews of how cannabis relates to personal identity were conducted among Canadian college students and found that cannabis use was often described as a socially acceptable “rite of passage” (Mostaghim and Hathaway, 2013). However, no known study has evaluated relationships between cannabis self-concept, cannabis use, and related constructs among a community sample of regular cannabis users.

The purpose of the current study is to contribute toward substance use self-concept literature, which has been primarily focused on alcohol and tobacco self-concept, by studying cannabis self-concept among a community sample of recently-using emerging adults. Specifically, the aims of the current study are: (1) to examine bivariate associations between cannabis self-concept, cannabis use, cannabis-related problems, using cannabis alone, motives for cannabis use, motivation to change cannabis use, and normative beliefs about cannabis, and (2) to explore multivariate relationships between cannabis self-concept and these related constructs. We hypothesize that cannabis self-concept will be associated with problematic patterns of use, such as more frequent use, greater problems, and using alone. We also hypothesize that individuals with higher self-concept will report higher cannabis norms (i.e., hold beliefs that more emerging adults are also cannabis users and have more close friends who are cannabis users), that self-concept will be associated with motives for use, and that high self-concept will be negatively associated with a motivation to make a change in cannabis use.

2. Methods

Participants were recruited between January 2012 and May 2016 by Facebook advertising, through Southern New England Craig’s List, through print advertisements (placed in local and college newspapers and on public transportation), and on commercial radio (Caviness et al., 2017). Specifically, advertisements stated that men and women between 18 and 25 who have recently used alcohol or marijuana were being sought for a paid research study on the health behaviors of young adults. Interested individuals were screened via telephone for eligibility: 18–25 years old, fluent in English, use of cannabis or alcohol in the past month, being sexually active, and residing within a half-hour drive of recruitment site. A total of 2,645 individuals were telephone screened, of whom 1,217 were ineligible (commonly for reasons such as lack of sexual activity (n=235), current suicidal ideation (n=234), age (n=148), and residence location (n=53)). The remaining 1,428 eligible persons were invited for an interview and 834 were either not interested (n=130 actively refused; n=202 passively refused, i.e. said they would call back to schedule an appointment, but never did or were already participating in a research study), or did not keep a scheduled appointment (n=502).

Five hundred ninety four completed a baseline after which 23 persons were found to be ineligible (e.g., having heavy substance use other than alcohol or cannabis, having current suicidality), and 13 opted out of the study during the baseline interview. The final recruited

sample consisted of 558 persons. Participants were compensated for their time (\$40). Since eligibility for the study included either alcohol or cannabis use, we limited the sample for the present analyses: we removed alcohol-only users and those who did not report past 30 day cannabis use during the baseline assessment point and only included data from individuals who reported using cannabis in the past 30 days (remaining $n=366$). After accounting for missing data on outcome measures ($n=12$) and listwise deletion ($n=9$), the sample included 345 participants. All questionnaires were presented verbally by study staff in order to reduce the probability of missing data and careless responding. Participants were allowed to skip any questions that they desired. The study was approved by the Institutional Review Board of a research hospital in Southern New England.

2.1 Measures

2.1.1 Explicitly-measured cannabis self-concept—The Cannabis Self-Concept scale is a 5-item scale that was adapted from a measure of tobacco smoking self-concept (Shadel et al., 1996) by replacing the term “smoking” with “smoking marijuana.” The original tobacco smoking self-concept scale has previously been adapted for use with alcohol (e.g., Dibello et al., in press; Lindgren et al., 2013). Participants rate five statements regarding the role that cannabis plays in their lives on a 10-point scale from 1 (*strongly disagree*) to 10 (*strongly agree*): “Smoking marijuana is part of my self-image,” “Smoking marijuana is who I am,” “Smoking marijuana is part of my personality,” “Smoking marijuana is a large part of my daily life,” and “Others view smoking marijuana as part of my personality.” A total score was formed by averaging the five items ($\alpha=.908$).

2.1.2 Cannabis use—Cannabis use was assessed with the Timeline Followback method (TLFB; Sobell and Sobell, 1992). The TLFB uses anchor dates to help participant recall. Participants reported the previous 90 days quantity and frequency of cannabis use. Participants were also asked the percentage of time that they smoked cannabis alone.

2.1.3 Cannabis problems and symptoms—Cannabis problems were assessed with the Marijuana Problems Scale (Stephens et al., 2000; Walker et al., 2007). Participants rated 19 cannabis-related problems over the past 90 days on as either 0 (no problem), 1 (minor problem), or 2 (serious problem) ($\alpha=.837$). A total score was created by adding scores on each item (possible range = 0–38). We assessed symptoms of cannabis use disorder (CUD) using the Structured Clinical Interview for DSM (First, 2014).

2.1.4 Cannabis motives—Motives for cannabis use were evaluated with the Marijuana Motives Measure (MMM; Simons et al., 1998). The MMM is a 25-item scale that assesses 5 motives. For the purposes of this study, the following scales were used due to their relationships with use and problems in previous research and due to their relative endorsement in a young adult sample (Cooper et al., 2016): coping (“Because it helped when you felt depressed or nervous”; $\alpha=.836$), enhancement (“To get high”; $\alpha=.832$), and social (“Because it’s what most of your friends did when you got together”; $\alpha=.768$). Participants rated each reason for cannabis use over the past 6 months on scale of 1 (almost never/never) to 5 (almost always/always).

2.1.5 Motivation to change—Thoughts about Abstinence (TAA) scale (Hall et al., 1990) is a 4-item measure that evaluates motivation to change and expectation of success at change. Given that this was a non-treatments-seeking sample, the current study utilizes one item that represents desire to change. Participants rated their desire to reduce their cannabis use on a scale of 1 (no desire) to 10 (very great desire).

2.1.6 Descriptive Norms—Norms were assessed for two reference groups: close friend and peers (i.e., other emerging adults their age). Participants were asked to report the number of close friends that they had, and the number of close friends that smoke cannabis. From these answers, a variable was created of percentage of close friends that use (Descriptive Norms – Close Friends). Additionally, participants were asked to report their perception of use by others in their age group: “What percentage of people your age do you think have smoked marijuana in the past 30 days?” (Descriptive Norms – Peers).

2.2 Analysis Plan

We present descriptive statistics to summarize the characteristics of the sample and product-moment correlation coefficients to evaluate unadjusted associations between variables of interest. We used multiple linear regression to estimate the adjusted associations of background characteristics, measures of cannabis use patterns and problems, motivations for using cannabis, and perceived cannabis use norms among close friends and peers with cannabis self-concept. We report unstandardized regression coefficients and the associated 95% confidence interval estimate. We also present fully-standardized regression coefficients for continuous covariates, and y-standardized coefficients for categorical coefficients. Because regression diagnostics indicated heteroscedasticity, confidence interval estimates and tests of significance were based on the robust, Huber-White variance estimator. All analyses were conducted with Stata version 15 (Statacorp, 2017).

3. Results

3.1 Descriptive Statistics

Mean age was 21.0 (\pm 2.06), 53.9% were male, 12.5% were Latino, 67.5% were Non-Latino White, 11.3% were Black, and 21.6% identified other racial origins (Table 1). Regarding educational status, 18.6% reported never attending college, 12.2% reported not currently being enrolled, 10.7% had recently completed or were currently enrolled in a 2-year college, while 44.4% were currently enrolled in a 4-year college and 14.2% had completed a 4-year degree. About half of the sample was unemployed (49.3%), while 13.3% were employed full-time and 37.4% were employed part time. On average, participants said they had used cannabis on 17.9 (\pm 11.1) days in the month prior to data collection; they said they used cannabis alone on about 26.3% (\pm 27.5) of the days on which they used. On average, participants met 2.88 (\pm 2.49) DSM-5 cannabis use disorder (CUD) criteria. About 28.4%, 18.0%, and 17.1% met criteria for mild, moderate, and severe CUD, respectively. Mean scores on the cannabis problem severity index were 5.41 (\pm 4.70). Mean scores on the cannabis self-concept index, which has a possible range of 1–10, were 3.68 (\pm 2.25). Descriptive statistics for all other variables used in subsequent analyses are also presented in Table 1.

3.2 Correlational Relationships

Product-moment correlation coefficients are presented in Table 2. Males tended to have slightly higher mean cannabis self-concept than females ($r = .11, p < .05$) and individuals who identified as being white tended to have slightly lower mean cannabis self-concept scores than individuals who identified with being black or of other racial groups ($r = -.11, p < .05$). Cannabis self-concept was positively and significantly associated with days of cannabis use ($r = .50, p < .01$), cannabis problem severity ($r = .35, p < .01$), the coping motive ($r = .43, p < .01$), the social motive ($r = .42, p < .01$), the enhancement motive ($r = .36, p < .01$), descriptive norms for close friends ($r = .22, p < .01$), descriptive norms for peers ($r = .18, p < .01$) and with the percentage of days they report using cannabis alone ($r = .23, p < .01$).

3.3 Multivariate Relationships

Controlling for all other covariates included in the multiple linear regression model (Table 3) cannabis self-concept was positively and significantly associated with days of cannabis use ($b = 0.070, p < .001$), cannabis problem severity ($b = 0.100, p = .001$), the social motive ($b = 0.684, p < .001$) and the enhancement motive ($b = 0.422, p = .010$). After adjusting for other covariates in the model, cannabis self-concept was also inversely and significantly associated with desire to reduce or cut down cannabis use ($b = -0.99, p = .012$). Adjusted associations with other variables included in the multiple linear regression model (Table 3) were not statistically significant at the .05 level.

4. Discussion and Conclusions

This study evaluated cannabis self-concept in a sample of frequently-using emerging adults. Despite the fact that this was a non-treatment-seeking, community-based sample, a substantial proportion of individuals reported negative consequences of use, as evidenced by cannabis use disorder symptomatology and reported cannabis-related problems. In multivariate analyses, cannabis use, problems, social motives, enhancement motives, and using alone were independently associated with cannabis self-concept, above and beyond the impact of other variables. Overall, results mimic findings from the alcohol and tobacco literature and suggest that self-concept can be used as a marker for more problematic patterns of use.

Results from this study were similar to the one previous quantitative study of cannabis self-concept: we also found a relationship between cannabis self-concept and use, problems, and motives for use (Pearson et al., 2017). However, the previous study did not find a significant positive relationship between cannabis self-concept and descriptive norms, whereas the current study did. However, our sample reported higher rates of cannabis self-concept and heavier and more problematic use, which may account for differences in findings. Additionally, our sample was taken from a diverse, community-recruited population and did not exclusively contain college students: approximately half the sample was employed, less than half the sample was currently enrolled in a 4-year university, and a portion of the sample had never been enrolled in college, had attended a 2-year college, or had already completed college.

As expected, cannabis self-concept was negatively associated with motivation to change cannabis use. This finding suggests that identification with cannabis as part of one's personality or identity, despite consequences of use, may be an integral part of emerging adulthood for some individuals. In opposition to user self-concept, non-user self-concept has been found to be predictive of sustaining abstinence from a substance (Meijer et al., 2015; Shadel et al., 1996). As such, future studies might examine how self-concept changes among persons who seek treatment and reduce or abstain from cannabis use.

Results suggest that having friends who use cannabis, cannabis use and problems, motives for cannabis use, and a lack of motivation to change are associated with cannabis self-concept. These findings support theories of emerging adulthood, which suggest that identity formation arises as a result of new behaviors and peers (Arnett, 2000). Additionally, results are consistent with the Theory of Planned Behavior (Ajzen, 1991), which emphasizes the role of norms and beliefs in predicting behavior. Future studies should include longitudinal evaluations to determine what may predict cannabis self-concept, to evaluate changes over time of self-concept, and to determine the ability to predict outcomes based on self-concept in order to determine whether self-concept may be an impactful target for prevention or intervention efforts.

Previous literature has established that alcohol self-concept predicts use and problems longitudinally (Dibello et al., in press; Lindgren, Neighbors, et al., 2016; Lindgren, Ramirez, Olin, et al., 2016). If self-concept does indeed drive problematic patterns of use, then cannabis self-concept may be not only a marker for patterns of problematic use but also an important target for intervention. One previous study has evaluated an intervention to change alcohol self-concept, but results showed no significant changes in self-concept or alcohol-related outcomes (Lindgren et al., 2015). However, perhaps a more direct approach to self-concept and identity formation (such as an intervention focused on developing and augmenting other aspects of one's identity) may be more effective than the approach-avoid training tasks used in that study. Intervening on self-concept may serve to increase motivation to make changes.

Several limitations should be noted. First, the cross-sectional nature of this data does not allow for evaluation of the directionality of relationships between self-concept and other variables of interest. Secondly, results from this study of emerging adults may not generalize beyond the age group or sample. The sample was specifically recruited for being substance users – specifically, we chose to focus on recent, past-month cannabis use, which may not generalize to less frequent users. Additionally, this was a non-treatment-seeking sample who, on average, were frequent users. A further limitation is that a large proportion of individuals first screened for the study were either found to be ineligible or chose not to complete a baseline interview. Although these rates from screening to eligibility for the current study are similar to other, community-based studies of emerging adults (Stein et al., 2011) and to longitudinal evaluations of emerging adults (Hanna et al., 2014), it is uncertain how results of the current sample may generalize to other populations or how the current sample differs from the sample of individuals who chose to not participate.

Emerging adulthood is the ideal time to study self-concept, as cannabis use (and other substance use) is most common and identity development is a key feature of this time period. Cannabis self-concept in emerging adults is related to a broad range of factors that have been previously studied as predictors of problematic cannabis use (i.e., motives, norms) and to consequential patterns of use. Results from the current study suggest that cannabis self-concept may also be a marker for high-risk use and therefore a potential target for intervention.

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Highlights

- Cannabis self-concept (i.e., cannabis identity) is understudied
- Cannabis self-concept is associated negative outcomes in emerging adults
- Higher rates of self-concept are related to less motivation to reduce cannabis use

Table 1

Background Characteristics and Sample Description (n = 345)

	n (%)	Mean (\pm SD)	Median	Range
Age		21.0 (\pm 2.06)	21	18 – 25
Gender (Male)	186 (53.9%)			
Latino (Yes)	43 (12.5%)			
Race				
White	233 (67.5%)			
Black	39 (11.3%)			
Other	73 (21.6%)			
Educational Status				
Never Enrolled in College	64 (18.6%)			
Not Currently Enrolled	42 (12.2%)			
Enrolled/Completed 2-Yr Degree	37 (10.7%)			
Currently Enrolled 4-Yr Degree	153 (44.4%)			
Completed 4-Yr Degree	49 (14.2%)			
Employment Status				
Employed Full-Time	46 (13.3%)			
Employed Part-Time	129 (37.4%)			
Not Employed	170 (49.3%)			
Days Used Cannabis (1–30)		17.88 (\pm 11.13)	19	1 – 30
% Days Used Alone		26.34 (\pm 27.50)	20	0 – 100
# CUD Criteria Met		2.88 (\pm 2.49)	2	0 – 11
CUD Severity				
None	126 (36.5%)			
Mild	98 (28.4%)			
Moderate	62 (18.0%)			
Severe	59 (17.1%)			
Cannabis Problems		5.41 (\pm 4.70)	4	0 – 28
Cannabis Self-Concept		3.68 (\pm 2.25)	3.4	1 – 10
Motives for Use				
Coping		2.31 (\pm 0.74)	2.20	1 – 4
Social		2.44 (\pm 0.71)	2.40	1 – 4
Enhancement		3.04 (\pm 0.68)	3.04	1.2 – 4
Desire to Reduce		3.95 (\pm 2.84)	3	1 – 10
Descriptive Norms – Friends (%)		78.66 (\pm 23.94)	83.33	0 – 100
Descriptive Norms – Peers (%)		67.92 (\pm 19.55)	70	10 – 100

Table 2

Product Moment Correlation Coefficients (n = 345).

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Cannabis S-Concept	1.00													
2. Age	.03	1.00												
3. Gender (Male)	.11*	-.08	1.00											
4. Race (White)	-.11*	-.00	.08	1.00										
5. Ethnicity (Hispanic)	.05	-.04	-.02	-.43***	1.00									
6. Days Used (1-30)	.50***	.04	.18**	-.00	.02	1.00								
7. Problems	.35***	-.05	.04	-.03	.02	.21**	1.00							
8. Coping Motive	.43***	.08	-.01	-.07	.08	.41**	.43**	1.00						
9. Social Motive	.42***	-.03	.08	-.15***	.05	.22**	.32**	.44**	1.00					
10. Enhancement Motive	.36***	.02	.04	-.07	.05	.20**	.21**	.42**	.46**	1.00				
11. Desire to Reduce	.02	-.09	.11*	-.03	.04	.04	.40**	.18**	.12*	.02	1.00			
12. Norms -Friends	.22**	-.09	.11*	-.02	-.01	.34**	.18**	.24**	.25**	.24**	.00	1.00		
13. Norms - Peers	.18**	-.01	-.15**	-.18***	.08	.24**	.07	.31**	.22**	.01	.05	.21**	1.00	
14. Use Alone (% Days)	.23***	.21**	.07	-.01	.01	.32**	.15**	.28**	-.07	.10	.09	.09	.12*	1.00

* p < .05;

** p < .01

Table 3

Multiple Linear Regression of Marijuana Self-Concept on Background Characteristics, Measures of Marijuana Use and Problems, and Motivations for Using Marijuana (n = 345).

	Adjusted Associations		
	b (95% CI)^a	β^b	t (p =) ^b
Age	-0.003 (-0.101; 0.093)	-0.00	-0.07 (.941)
Gender (Male)	0.178 (-0.218; 0.574)	0.08	0.89 (.376)
Hispanic (Yes)	0.041 (-0.634; 0.717)	0.02	0.12 (.905)
Race			
Black	0.379 (-0.338; 1.078)	0.16	1.03 (.305)
Other	0.230 (-0.347; 0.807)	0.10	0.79 (.433)
White [REF]	[0.00]	[0.00]	
Days Used	0.070 (0.050; 0.091)	0.35	6.79 (<.001)
Cannabis Problems	0.100 (0.041; 0.152)	0.02	3.41 (.001)
Coping Motive	0.173 (-0.199; 0.546)	0.06	0.91 (.361)
Social Motive	0.684 (0.310; 1.059)	0.21	3.59 (<.001)
Enhancement Motive	0.422 (0.102; 0.741)	0.13	2.60 (.010)
Desire to Reduce	-0.099 (-0.177; -0.022)	-0.13	-2.53 (.012)
Descriptive Norms - Friends	-0.005 (-0.014; 0.005)	-0.05	-0.97 (.332)
Descriptive Norms - Peers	0.007 (-0.010; 0.013)	0.01	0.27 (.130)
% Days Used Alone	0.007 (-0.002; 0.016)	0.08	1.52 (.130)

^aFully-standardized coefficient for continuous covariates and y -standardized coefficient for categorical covariates.

^bStandard errors and tests of significance are based on the robust Huber-White Variance Estimator.