

Screening & Assessment of Cannabis Use Disorders

Susan A. Stoner, PhD, Research Consultant

A major concern with legalization of recreational marijuana use is that increased availability and acceptability will lead to increased consumption, which in turn will lead to increased incidence and prevalence of cannabis use disorders. In the context of legalization, screening and assessment play an important role in detecting, evaluating, and treating cannabis use disorders and related problems.

Unique aspects of cannabis use (e.g., the fact that medicinal and recreational uses have been legalized in some jurisdictions) may affect the applicability of general drug use measures to cannabis. Therefore, this fact sheet focuses on well-validated, self-report measures that have been designed or modified specifically to address cannabis use. Measures to screen and assess both adolescents and adults are reviewed.

Selecting a screening or assessment measure

No single instrument has been universally accepted as the best for screening or assessing any given aspect of cannabis use disorders, and no single instrument can substitute for a careful diagnostic clinical interview.

For more about these and other measures, visit the ADAI Screening & Assessment Instrument database: <http://lib.adai.uw.edu/instruments>

That being said, clinicians should use their clinical judgment as to what assessment instruments may be most appropriate for their purposes in their practice settings.

Screening is a preliminary assessment that seeks to identify cannabis users who are likely to be at risk for or currently have use-related problems. **Assessment** seeks to evaluate the level of risk, severity of problems, or extent of relevant risk or protective factors to inform the course of treatment. While screening can be conducted through biochemical or self-report measures, assessment is primarily conducted through self-report measures, and many self-report measures designed for general drug use are utilized for cannabis use.

To identify those with or at risk for cannabis use disorders, screening instruments make use of cutoff scores that balance the need for sensitivity with the need for specificity, which are at opposite sides of the continuum. As sensitivity increases, the number screening positive increases, including the number of false positives. As specificity increases, the number screening negative increases, including the number of false negatives. Sensitivity errs on the side of inclusivity while specificity errs on the side of exclusivity.

In choosing a screening instrument and a cutoff score for that instrument, the clinician should make note of the standard cutoff, but also consider his or her purpose. If cost is a concern and resources are limited, specificity becomes more important, and cutoffs may be set higher than existing standards. If cost is less of a concern and there is a desire to identify those who may have otherwise fallen through the cracks, sensitivity becomes more important, and cutoffs may be set lower than existing standards.

Measures to screen for Cannabis Use Disorder

Below is a selection of commonly used self-report screening instruments, with standard cutoffs, ordered according to the number of items in the scale.

Title, Abbrev. (Source)	Severity of Dependence Scale, SDS (van der Pol et al., 2013)
Reference Period	Past year
Target Audience	Adolescents and adults
Number of Items, Range	5, 0-15
Example Questions	1) Did you think your use of cannabis was out of control? 2) Did you worry about your use of cannabis?
Response Options (Score)	Response options vary from question to question. Most questions use the following: Never/almost never (0), sometimes (1), often (2), always/nearly always (3)
Cut-off score	2 or above is considered a positive screen for cannabis use disorder.

Title, Abbrev. (Source)	Cannabis Abuse Screening Test, CAST (Legleye et al., 2012)
Reference Period	Lifetime
Target Audience	Adolescents and young adults
Number of Items, Range	6, 0-24 (full scale scoring method)
Example Questions	1) Have you ever smoked cannabis before midday? 2) Have you ever smoked cannabis when you were alone?
Response Options (Score in full scale scoring method)	Never (0), rarely (1), sometimes (2), quite often (3), very often (4) An alternative method scores each item 0 or 1 according to a threshold
Cut-off score	6 or above using full scale scoring is considered a positive screen for 6 cannabis use problems.

Title, Abbrev. (Source)	Cannabis Use Disorders Identification Test - Revised, CUDIT-R (Adamson et al., 2010)
Reference Period	Past six months
Target Audience	Adolescents and adults
Number of Items, Range	8, 0-24
Example Questions	1) How often do you use cannabis? 2) How many hours were you "stoned" on a typical day when you had
Response Options (Score)	Response options vary from question to question. Most questions use the following: Never (0), less than monthly (1), monthly (2), weekly (3), daily or almost daily (4)
Cut-off score	8 or above is considered positive for hazardous use. 12 or above is considered positive for possible cannabis use disorder.

Title, Abbrev. (Source)	Problematic Use of Marijuana (Okulicz-Kozaryn, 2007; Piontek et al., 2008)
Reference Period	Lifetime, current behavior
Target Audience	Adolescents
Number of Items, Range	8, 0-8
Example Questions	1) Have you ever skipped school classes or came late to school because of cannabis use? 2) Do you often feel desire for cannabis?
Response Options (Score)	No (0), yes (1)
Cut-off score	2 or above is considered a positive screen for cannabis use disorder.

Title, Abbrev. (Source)	Cannabis Use Problems Identification Test, CUPIT (Bashford et al., 2010)
Reference Period	Past 12 months
Target Audience	Adolescents and adults
Number of Items, Range	16, 0-82
Example Questions	1) On how many days have you used cannabis during the past 12 months? 2) How many times would you use cannabis on a typical day when you were using?
Response Options (Score)	Response options vary from question to question
Cut-off score	12 or above is considered an optimal cut-off for those warranting further assessment.

Title, Abbrev. (Source)	Marijuana Screening Inventory (Alexander & Leung, 2004)
Reference Period	Lifetime, current behavior
Target Audience	Adolescents and young adults
Number of Items, Range	31, 0-31
Example Questions	1) Do you ever feel bad about your marijuana use? 2) Have you ever been arrested for possession of or for dealing
Response Options (Score)	No (0), yes (1)
Cut-off score	3 or above is considered moderate risk, 6 or above is considered high risk

Measures to assess cannabis use disorders

Assessment of the extent of cannabis use, cannabis-related problems, or relevant risk or protective factors may be very useful to inform the course of treatment or evaluate its outcome. Assessing quantity and frequency of use is tricky due to differences in potency of strains, forms (flowers, oils, waxes, etc.). Below are some domains for which valid and reliable assessment instruments exist.

Use patterns. The **Timeline Followback Method**, TLFB (Sobell et al., 1996) involves asking individuals to retrospectively estimate their marijuana use in terms of number of joints smoked per day from 7 days up to 2 years prior to the interview date. For marijuana, individuals are asked to estimate the number of joints smoked per day. The **Marijuana Smoking History Questionnaire**, MSHQ (Bonn-Miller & Zvolensky, 2009) assesses current use

frequency in the past 30 days, average quantity smoked per occasion, number of days used in one's lifetime, typical means by which marijuana is used, age of first use, etc.

Use-related problems. Measures of use-related problems are important in evaluating the impact of cannabis use on users' lives and the effect of treatment. Geared towards adults, the 19-item **Marijuana Problem Scale**, MPS (Stephens et al., 2000) measures potential negative effects of marijuana on social relationships, self-esteem, motivation and productivity, work and finances, physical health, memory impairment, and legal problems. The 18-item Rutgers **Rutgers Marijuana Problem Index**, RMPI (White et al., 2005) asks respondents to rate the frequency with which they have experienced marijuana-related problems over the last year, e.g. "Not able to do your homework or study for a test", "Missed out on other things because you spent too much money on marijuana." The 27-item **Cannabis Problems Questionnaire**, CPQ (Copeland et al., 2005) measures acute and physical consequences, psychological consequences, and social consequences of cannabis use. While the CPQ is geared towards adults, an adolescent version called the CPQ-A is also available (Martin et al., 2006). The 50-item **Marijuana Consequences Questionnaire**, MACQ (Simons et al., 2012) measures social-interpersonal consequences, self-perception, self-care, academic/occupational consequences, blackout use, impaired control, and physical dependence. A briefer 21-item general version called the B-MACQ is also available. Both measures target young adults.

Craving and withdrawal. Measuring craving and withdrawal can provide some indication of the severity of cannabis dependence. The 47-item **Marijuana Craving Questionnaire**, MCQ (Heishman et al., 2001) measures compulsivity (inability to control marijuana use), emotionality (expecting use to reduce negative emotion); expectancy (expecting use to have positive outcomes), and purposefulness (intention and planning to use for positive outcomes). A 12-item short form, called the MCQ-SF, is also available (Heishman et al., 2009). The **Marijuana Withdrawal Checklist**, MWCQ (Budney et al., 1999) lists 22 symptoms that users may report when they abstain from marijuana use, with each symptom rated as absent, mild, moderate, or severe.

Motives and motivation and for using and quitting. Knowing why someone uses or wants to quit using cannabis can be informative in a treatment context. The **Marijuana Quit Questionnaire**, MJQQ (Copersino et al., 2006) includes 23 items measuring reasons for quitting marijuana as well as an open-ended question on reasons for resuming marijuana, "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?" The **Marijuana Decisional Balance Scale**, MDBS (Elliott et al., 2011) includes 8 pros and 16 cons. Users rate the importance of each item as it might influence their own decisions to use or not use. The **Marijuana Ladder** (Slavet et al., 2006) is a visual analog measure of a marijuana user's stage of change. A 10-rung ladder is depicted, each with a statement that is representative of stage of change, from (1) "I enjoy using marijuana and have decided never to change it. I have no interest in changing the way that I use marijuana" to (10) "I have changed my marijuana use and will never go back to the way I used marijuana before." The **Marijuana Motives Measure**, MMM (Simons et al., 1998) includes 25 items covering five categories of motives for marijuana use: social (e.g., "because it makes social gatherings more fun"), coping (e.g., "because it helps me when I feel depressed or nervous"), expansion (e.g., "because it helps me be more creative and original"), conformity (e.g., "because my friends pressure me"), and enhancement (e.g., "because I like the feeling"). The **Comprehensive Marijuana Motives Questionnaire**, CMMQ (Lee et al., 2009) consists of 36 items representing 12 different motives for using marijuana: enjoyment, conformity, coping, experimentation, boredom, alcohol use, celebration, altered perceptions, social anxiety, relative low risk, sleep, and availability.

Expectancies and experiences. Expectancies generally refer to the expected effects of using marijuana, but some measures of expectancies also tap into reasons for use and attitudes towards use. The **Adolescent Cannabis Expectancies Questionnaire**, ACEQ (Willner, 2001), for example, includes 6 positive items and 6 negative items that are essentially attitudes towards cannabis use (e.g., "Smoking cannabis makes the world a better place," "People who smoke cannabis lose control and have accidents"). The **Marijuana Effect Expectancy Questionnaire**, MEEQ

(Schafer & Brown, 1991) consists of 18 items measuring personal thoughts, feelings, and beliefs about the effects of marijuana regardless of whether they have ever used it, covering 6 domains: cognitive and behavioral impairment, relaxation and tension reduction, social and sexual facilitation, perceptual and cognitive enhancement, global negative effects, and craving and physical effects. A brief 6-item version of the MEEQ, called the MEEQ-B (Torrealday et al., 2008), was developed for use with youth, with one item per domain. The **Cannabis Expectancy Questionnaire**, CEQ (Connor et al., 2011) includes 45 items covering positive and negative expectancies (e.g., “Smoking cannabis makes me happy,” “Smoking cannabis makes me feel insecure”). The **Memory Model-Based Marijuana Expectancy Questionnaire**, MMBMEQ (Linkovich-Kyle & Dunn, 2001) presents 54 adjectives representing how one might expect to feel after using cannabis (e.g., giddy, goofy, gross, high). Similarly, the **Marijuana Expectancy Inventory for Children and Adolescents**, MEICA (Alfonso & Dunn, 2007) presents 27 positive and negative adjectives (e.g., calm, confused, happy, hungry). The **Cannabis Experiences Questionnaire**, CEQ (Stirling et al., 2008) assesses cannabis-induced psychotic-like experiences with 35 items covering domains of psychotic-dysphoric feelings, intoxicated feelings, and expansive feelings, which may be concerning for individuals who are prone to psychosis.

Coping and self-efficacy. Assessing individuals’ coping strategies and self-efficacy can support their maintenance of behavior change when it comes to using cannabis. The **Coping Strategies Scale**, CSS (Litt et al., 2012) is comprised of 48 items intended to tap potential coping strategies that might be used by to remain abstinent, covering active versus avoidant coping and behavioral versus cognitive coping. The **Marijuana Reduction Strategies Self-Efficacy Scale**, MJRSSES (Davis et al., 2014) consists of 21 items covering cognitive-behavioral strategies that an individual might employ to reduce consumption of marijuana, without remaining abstinent (e.g., “take shorter, less deep hits,” “do not use marijuana more than once per day”). The **Cannabis Refusal Self-Efficacy Questionnaire**, CRSEQ (Young et al., 2012) measures situational confidence to refuse cannabis using 14 items covering three types of situations: emotional relief, opportunistic use, and social facilitation.

Summary

In summary, screening and assessment can greatly facilitate recognition, evaluation, management, and treatment of individuals with cannabis use disorders, and a number of evidence-based cannabis-specific instruments are available to aid healthcare providers and other clinicians achieve positive treatment outcomes with their cannabis-using patients and clients.

References

- Adamson, S. J., Kay-Lambkin, F. J., Baker, A. L., Lewin, T. J., Thornton, L., Kelly, B. J., & Sellman, J. D. (2010). An improved brief measure of cannabis misuse: the Cannabis Use Disorders Identification Test-Revised (CUDIT-R). *Drug and Alcohol Dependence*, 110 (1), 137-143.
- Alexander, D. E., & Leung, P. (2004). The Marijuana Screening Inventory (MSI-X): Reliability, factor structure, and scoring criteria with a clinical sample. *The American Journal of Drug and Alcohol Abuse*, 30 (2), 321-351.
- Alfonso, J., & Dunn, M. E. (2007). Differences in the marijuana expectancies of adolescents in relation to marijuana use. *Substance Use & Misuse*, 42 (6), 1009-1025.
- Annaheim, B. (2013). Who is smoking pot for fun and who is not? An overview of instruments to screen for cannabis-related problems in general population surveys. *Addiction Research & Theory*, 21 (5), 410-428.
- Bashford, J. (2009). *Screening and assessment for cannabis use disorders*. Sydney, Australia: National Cannabis Prevention and Information Centre. Retrieved from <https://ncpic.org.au/static/pdfs/background-papers/screening-and-assessment-for-cannabis-use-disorders.pdf>.
- Bashford, J., Flett, R., & Copeland, J. (2010). The Cannabis Use Problems Identification Test (CUPIT): Development, reliability, concurrent and predictive validity among adolescents and adults. *Addiction*, 105 (4), 615-625.
- Bonn-Miller, M. O., & Zvolensky, M. J. (2009). An evaluation of the nature of marijuana use and its motives among young adult active users. *American Journal on Addictions*, 18 (5), 409-416.
- Connor, J. P., Gullo, M. J., Feeney, G. F., & Young, R. M. (2011). Validation of the Cannabis Expectancy Questionnaire (CEQ) in adult cannabis users in treatment. *Drug and Alcohol Dependence*, 115 (3), 167-174.

- Copeland, J., Gilmour, S., Gates, P., & Swift, W. (2005). The Cannabis Problems Questionnaire: factor structure, reliability, and validity. *Drug and Alcohol Dependence*, 80 (3), 313-319.
- Copersino, M. L., Boyd, S. J., Tashkin, D. P., Huestis, M. A., Heishman, S. J., Dermand, J. C., ... & Gorelick, D. A. (2006). Quitting among non-treatment-seeking marijuana users: reasons and changes in other substance use. *American Journal on Addictions*, 15 (4), 297-302.
- Davis, A. K., Osborn, L. A., Leith, J., Rosenberg, H., Ashrafioun, L., Hawley, A., ... & Cross, N. (2014). Development and evaluation of the Marijuana Reduction Strategies Self-Efficacy Scale. *Psychology of Addictive Behaviors*, 28 (2), 575.
- Elliott, J. C., Carey, K. B., & Scott-Sheldon, L. A. (2011). Development of a decisional balance scale for young adult marijuana use. *Psychology of Addictive Behaviors*, 25 (1), 90.
- Heishman, S. J., Evans, R. J., Singleton, E. G., Levin, K. H., Copersino, M. L., & Gorelick, D. A. (2009). Reliability and validity of a short form of the Marijuana Craving Questionnaire. *Drug and alcohol dependence*, 102(1), 35-40.
- Heishman, S. J., Singleton, E. G., & Liguori, A. (2001). Marijuana Craving Questionnaire: Development and initial validation of a self-report instrument. *Addiction*, 96 (7), 1023-1034.
- Lee, C. M., Neighbors, C., Hendershot, C. S., & Grossbard, J. R. (2009). Development and preliminary validation of a comprehensive marijuana motives questionnaire. *Journal of Studies on Alcohol and Drugs*, 70 (2), 279-287.
- López-Pelayo, H., Batalla, A., Balcells, M. M., Colom, J., & Gual, A. (2015). Assessment of cannabis use disorders: a systematic review of screening and diagnostic instruments. *Psychological Medicine*, 45 (6), 1121-1133.
- Legleye, S., Kraus, L., Piontek, D., Phan, O., & Jouanne, C. (2012). Validation of the Cannabis Abuse Screening Test in a sample of cannabis inpatients. *European addiction research*, 18(4), 193-200.
- Linkovich-Kyle, T. L., & Dunn, M. E. (2001). Consumption-related differences in the organization and activation of marijuana expectancies in memory. *Experimental and Clinical Psychopharmacology*, 9 (3), 334.
- Litt, M. D., Kadden, R. M., & Tennen, H. (2012). The nature of coping in treatment for marijuana dependence: latent structure and validation of the Coping Strategies Scale. *Psychology of Addictive Behaviors*, 26 (4), 791.
- Martin, G., Copeland, J., Gilmour, S., Gates, P., & Swift, W. (2006). The adolescent cannabis problems questionnaire (CPQ-A): Psychometric properties. *Addictive Behaviors*, 31 (12), 2238-2248.
- Okulicz-Kozaryn, K. (2007) Ocena psychometrycznych wlasciwosci testu "Problemowe uzywanie marihuany" (PUM) dla dorastajacych. *Postepy Psychiatrii i Neurologii*, 16 (2), 105-111.
- Piontek, D., Kraus, L., & Klempova, D. (2008). Short scales to assess cannabis-related problems: A review of psychometric properties. *Substance Abuse Treatment, Prevention, and Policy*, 3 (1), 1.
- Schafer, J., & Brown, S. A. (1991). Marijuana and cocaine effect expectancies and drug use patterns. *Journal of Consulting and Clinical Psychology*, 59 (4), 558.
- Simons, J. S., Dvorak, R. D., Merrill, J. E., & Read, J. P. (2012). Dimensions and severity of marijuana consequences: Development and validation of the Marijuana Consequences Questionnaire (MACQ). *Addictive Behaviors*, 37 (5), 613-621.
- Slavet, J. D., Stein, L. A. R., Colby, S. M., Barnett, N. P., Monti, P. M., Golembeske, C., & Lebeau-Craven, R. (2006). The Marijuana Ladder: Measuring motivation to change marijuana use in incarcerated adolescents. *Drug and Alcohol Dependence*, 83 (1), 42-48.
- Sobell, L. C., Sobell, M. B., Buchan, G., Cleland, P. A., Fedoroff, I., & Leo, G. I. (1996, November). The reliability of the Timeline Followback method applied to drug, cigarette, and cannabis use. Presented at the 30th Annual Meeting of the Association for Advancement of Behavior Therapy. New York, NY.
- Stirling, J., Barkus, E. J., Nabosi, L., Irshad, S., Roemer, G., Schreudergoidheijt, B., & Lewis, S. (2008). Cannabis-induced psychotic-like experiences are predicted by high schizotypy. *Psychopathology*, 41 (6), 371-378.
- Torrealday, O., Stein, L. A. R., Barnett, N., Golembeske, C., Lebeau, R., Colby, S. M., & Monti, P. M. (2008). Validation of the marijuana effect expectancy questionnaire-brief. *Journal of child & adolescent substance abuse*, 17(4), 1-17.
- Van der Pol, P., Liebrechts, N., Graaf, R., Korf, D. J., Brink, W., & Laar, M. (2013). Reliability and validity of the Severity of Dependence Scale for detecting cannabis dependence in frequent cannabis users. *International Journal of Methods in Psychiatric Research*, 22 (2), 138-143.
- White, H. R., Labouvie, E. W., & Papadaratsakis, V. (2005). Changes in substance use during the transition to adulthood: A comparison of college students and their noncollege age peers. *Journal of Drug Issues*, 35 (2), 281-306.
- Willner, P. (2001). A view through the gateway: Expectancies as a possible pathway from alcohol to cannabis. *Addiction*, 96 (5), 691-703.
- Young, R. M., Gullo, M. J., Feeney, G. F., & Connor, J. P. (2012). Development and Validation of the Cannabis Refusal Self-Efficacy Questionnaire (CRSEQ) in adult cannabis users in treatment. *Drug and Alcohol Dependence*, 125 (3), 244-251.

Citation: Stoner SA. Screening and Assessment for Cannabis Use Disorder. Alcohol & Drug Abuse Institute, University of Washington, May 2016. URL: <http://adai.uw.edu/pubs/pdf/2016marijuanascreenassess.pdf>

This report was produced with support from the I-502 Dedicated Marijuana Fund for research at the University of Washington.