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Marijuana stereotypes and the "jay-dar": Perceptions of cannabis use and memory abilities based upon appearance

Rayna B. Hirst [a,c,*], Richard H. Enriquez [a], Robert E. Wickham [a], Julie Gretler [a], Louise M. Sodos [a], Stephanie A. Gade [a], Laura K. Rathke [a], Cecilia S. Han [a], Thomas F. Denson [b], Mitch Earleywine [c]

[a] Palo Alto University, 1791 Arastradero Road, Palo Alto, CA 94304, United States
[b] UNSW Sydney, NSW 2052, Australia
[c] University of Albany, SUNY Department of Psychology, 1400 Washington Avenue, Albany, NY 12222, United States

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ABSTRACT

With increasing legalization of cannabis, global use has risen. While individuals may choose not to disclose cannabis use, if others can accurately guess based upon appearance there may be negative implications given common stereotypes about cannabis effects on cognition, particularly memory. This study examined (1) the ability of individuals to discriminate between cannabis users and non-users based upon appearance and (2) the relationship between ratings of Perceived Memory Performance and actual or perceived cannabis use. In Study 1, undergraduates ($N = 244$) rated photographs on the likelihood that the individuals use cannabis. As hypothesized, photographs of users received higher ratings than non-users. In Study 2, a separate group of undergraduates ($N = 218$) rated the photos as to how well they thought each individual would perform on a learning and memory test. While actual user status was unrelated to Perceived Memory Performance, perceived user status negatively related to Perceived Memory Performance. Results suggest cannabis users are rated as more likely to be users than non-users, based upon appearance. Further, results suggest a stereotype of memory deficits against individuals who "look like" cannabis users. These findings have important implications for potential stigma, as well as for research on cannabis use effects.

1. Introduction

According to the Center for Behavioral Health Statistics and Quality (CBHSQ, 2015) an estimated 22.2 million Americans aged 12 or older used marijuana in the past month. The percentage of monthly users reported in CBHSQ (2015) data is significantly higher than in any year since 2002. One reason for the growing number of cannabis users may be the recent changes in laws governing marijuana use. Since 2004, 23 states and the District of Columbia have decriminalized the use of marijuana for medical use, bringing the total number of states that have legalized marijuana sales for medical purposes to 28 (National Conference of State Legislatures [NCSL], 2016; ProCon.org, 2016). In addition, since 2012, eight states and the District of Columbia have passed laws allowing adult recreational use of marijuana (NCSL, 2016). The growing prevalence of cannabis use, along with the legislative initiatives in recent years to legalize cannabis for both medicinal and recreational use, suggests a sociocultural change in acceptability.

Nevertheless, despite recent legislative efforts, individuals may be reluctant to disclose their cannabis use for fear of being judged. As legalization of cannabis use is far from universal, known cannabis users may experience negative social stigma given its ambiguous legal status (Satterlund, Lee, & Moore, 2015). Despite a majority of states passing laws in favor of legalization of cannabis use for either medicinal or recreational use, cannabis remains a Schedule I (Title 21, Section 1308.11) controlled substance and therefore a federal crime (Satterlund, Lee, & Moore, 2015). Furthermore, well-documented media and research reports regarding cognitive deficits due to regular cannabis use have contributed to common cannabis-related stereotypes, such as learning and memory impairment (Gardner, 2012; Park, 2013). These stereotypes persist despite mixed findings on whether regular cannabis use contributes to permanent cognitive deficits (e.g., Schreiner & Dunn, 2012).

While some studies have found poorer cognitive functioning in long-term chronic cannabis users relative to non-users (e.g., Grant, Gonzalez, Carey, Natarajan, & Wolfson, 2003; Solowij et al., 2002; Thoma et al., 2011), others found no significant group differences (e.g., Lyketsos, Garrett, Liang, & Anthony, 1999; Schreiner & Dunn, 2012). Findings specific to memory are also mixed. For example, Solowij et al. (2002) found

* Corresponding author at: Palo Alto University, 1791 Arastradero Road, Palo Alto, CA 94304, United States.
E-mail addresses: rhirst@paloaltou.edu (R.B. Hirst), renriquez@paloaltou.edu (R.H. Enriquez), rwickham@paloaltou.edu (R.E. Wickham), jgretler@paloaltou.edu (J. Gretler), lsodos@paloaltou.edu (L.M. Sodos), stephanies@paloaltou.edu (S.A. Gade), lrathke@paloaltou.edu (L.K. Rathke), shan@paloaltou.edu (C.S. Han), mearleywine@albany.edu (M. Earleywine).

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that long-term cannabis users performed worse on memory tasks than short-term users, and early meta-analytic findings suggested that long-term cannabis use may have a small effect on learning and memory in adults (Grant, Gonzalez, Carey, Natarajan, & Wolfson, 2003). Similar results have also been reported in adolescent users, with frequency of cannabis use positively predicting memory deficits (Thoma et al., 2011). Nevertheless, other evidence fails to support memory deficits in chronic cannabis users. For example, a longitudinal study investigated the cognitive effects of chronic cannabis use in an aging population and found no relationship between cannabis use and cognitive decline, even in memory (Lyketsos, Garrett, Liang, & Anthony, 1999). Further, in a more recent, methodologically rigorous, meta-analysis, Schreiner and Dunn (2012) analyzed only studies that tested cognition in cannabis users after one month of abstinence, to prevent the confound of residual effects (the lingering effects of acute intoxication). The results of this meta-analysis showed no effect of cannabis use across any of eight cognitive domains, including memory. While discrepancies in the literature concerning the effects of chronic cannabis use on cognition are well documented, there are a substantial number of reports linking acute intoxication and cognitive impairment, particularly in memory, which may add to the already equivocal beliefs regarding cannabis' effect on learning and memory function (e.g., Hall & Degenhardt, 2009; Hall & Solowij, 1998; Schreiner & Dunn, 2012).

In light of cannabis' legal ambiguity and the common stereotype associating cannabis use with memory impairment, regular or even occasional cannabis users may be reluctant to disclose cannabis use for fear of negative social consequence. For example, individuals may choose not to disclose their cannabis use status due to concerns about the impact on potential employment opportunities or occupational advancement. Employees may believe that employers' perceptions regarding cannabis use will lead to negative perceptions regarding employees' cognitive ability or work performance (Carpenter, 2007). Similarly, individuals may be hesitant to disclose cannabis use status to their healthcare providers for fear that cannabis use might become documented in their health record and negatively impact their health insurance or subsequent medical care (Bujarski et al., 2016). Furthermore, for those using medicinal cannabis, the perceived choice to avoid social stigma may be to either conceal cannabis use or discontinue use. Discontinuation of use for fear of social stigma is particularly problematic given that cannabis use may actually improve cognition by reducing symptoms related to chronic pain or psychoticism (e.g., Yucel et al., 2012). Thus, overtly identifying as a cannabis user may have negative implications. For these reasons, cannabis users may elect to keep their cannabis use private; however, they may not consider that their appearance could give cues to others about their cannabis use status.

Humans are remarkably adept at judging many aspects of functioning simply from appearance. It is well known that individuals can make accurate judgments about others' affective state (e.g., happiness, sadness, anger, fear, surprise, and disgust) based on appearance alone (e.g., Ekman, 1992; Ekman & Friesen, 1971). Personality trait judgments based upon appearance are made in 100 milliseconds or less (Todorov, Pakrashi, & Oosterhof, 2009; Willis & Todorov, 2006), but the accuracy is variable depending upon the trait being judged (Gray, 2008). For example, while individuals are generally inaccurate when judging personality traits such as conscientiousness or adventurousness (e.g., Albright, Kenny, & Malloy, 1988; Thoresen, Vuong, & Atkinson, 2012), there is some evidence that behavioral traits such as substance use (Olivola & Todorov, 2010) or even cannabis use status specifically (Hirst et al., 2016) can be accurately guessed.

Hirst et al. (2016) investigated the presence of a "jay-dar" (i.e., the ability to detect whether an individual smokes marijuana joints, or "jays"), similar to the "gay-dar" shown in other research (Shelp, 2003). The authors found that photographs of cannabis users (those with >400 lifetime uses who had not consumed in the past 24 h) taken in their typical clothing and hairstyle received significantly higher ratings from neuropsychologists on a Marijuana Use Likelihood Index, relative to photos of non-users. Thus, individuals can discriminate between cannabis users and non-users based upon appearance alone. These findings have important implications with regard to the mixed results found in the literature on the cognitive effects of cannabis use described above. Hirst et al. (2016) chose a sample of neuropsychologists because those are the very professionals who would conduct research on cannabis' effect on cognition. Thus, their findings provide evidence that even research studies utilizing test examiners who are blind to cannabis user status may be vulnerable to an expectancy effect confound, as examiners may be able to guess participants' user status. Examiners' expectations about the anticipated findings may then, consciously or unconsciously, influence their interactions with participants, which may impact research results (Hirst et al., 2016). Given these findings and the common association between cannabis use and cognitive deficits, the present authors posited that individuals identified as cannabis users by raters might also be vulnerable to well-known stereotyped attributions, such as memory impairment. As described above, this finding would have important implications for educational, occupational, and social situations, as well as for research examining the effects of cannabis use.

Whereas Hirst et al. (2016) demonstrated the "jay-dar" in a sample of neuropsychologists, the present study investigated the presence of the "jay-dar" in an undergraduate population. Furthermore, this study investigated the potential correlation between perceived user status and common cannabis stereotypes (i.e., learning and memory impairment) by assessing perceived learning and memory performance in cannabis users and non-users based upon photograph appearance alone. Previous findings indicate that raters were able to differentiate the likelihood of cannabis use between photographed users and non-users, and there is a well-known stereotype that cannabis use leads to memory deficits (Gardner, 2012; Park, 2013). Therefore, the authors hypothesized that actual cannabis users would be perceived as likely to have learning and memory difficulties based upon a photograph alone, even if no mention of cannabis use is made, while non-users would not be perceived this way. Further, the authors hypothesized that individuals who had been previously judged by other raters as likely to be cannabis users (i.e., those who 'look like' cannabis users regardless of actual user status) would be presently judged as likely to have learning and memory difficulties. The authors tested these hypotheses in two studies. In Study 1, undergraduates rated photographs of cannabis users and non-users as to how likely it is that the photographed individual is a cannabis user. In Study 2, we asked undergraduates to rate how well they believed the photographed individual would do on a test of learning and memory, with no mention of cannabis use status.

The aim of Study 1 was to support previous findings (Hirst et al., 2016) indicating that individuals are capable of discriminating between cannabis users and non-users. The authors sought to expand the generalizability of these findings by recruiting from an undergraduate population. Further, researchers aimed to use these ratings to investigate the association between actual or perceived cannabis use and perceived learning and memory ability in a between-group study (Study 2).

2. Study 1

2.1. Method

2.1.1. Participants

Undergraduate students from an Australian university ($N = 244$) evaluated 21 photographs of cannabis users and non-users. Participants' mean age was 21.01 ($SD = 3.18$, range 18–44) and mean years of education was 14.29 ($SD = 1.27$). The sample was 70% female; two respondents chose not to report their sex. Ethnicity was reported as 45% Caucasian, 42% Asian/Pacific Islander, 10% other, 0.01% Black, 0.01% Hispanic, and 0.01% (2 respondents) declined to report their race.