



# Implicit cognition, sensation seeking, marijuana use and driving behavior among drug offenders

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## Abstract

This research addresses the relative contributions of cognitive and personality constructs in drug use motivation and problem behaviors associated with use. The purpose of this study was to investigate the relationships among four factors: Sensation seeking, memory association, marijuana use, and driving under the influence (DUI) in a high-risk population. Gender was also analyzed for its potentially confounding effects. Participants were 166 first- and second-time drug offenders ranging in age from 18 to 50 who were enrolled in a drug diversion education/counseling program in southern California. Results showed that memory association independently predicted marijuana use and mediated the predictive effects of sensation seeking on marijuana use. Memory association, but not sensation seeking, also had a significant indirect effect on DUI, mediated through marijuana use. These findings have important implications for the development of prediction models of drug use and DUI for high-risk populations. © 2002 Published by Elsevier Science Ltd.

*Keywords:* Sensation seeking; Memory association; Marijuana use; Driving under the influence; Implicit cognition

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## 1. Introduction

Driving under the influence of alcohol or other drugs (DUI) remains a serious problem among young adults (e.g. Grube & Voas, 1996; Stacy, Newcomb, & Bentler, 1991). Approximately 50% of drivers between the ages 15–24 report that they drink and drive, and more than half of all fatal vehicular crashes among this age group involve alcohol (Rivers, Sarvela, & Shannon, 1996). For every DUI arrest, it is estimated that between 200–2000 more drug-compromised individuals are driving undetected (Johnson & White, 1989) and risky drivers who engage in such driving

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successfully (i.e. they are not arrested) tend to repeat this behavior (Turrisi & Jaccard, 1992). Although most DUI statistics cite alcohol-related accidents, marijuana and cocaine are also implicated, at least in the Los Angeles area (Budd, Muto, & Wong, 1989). For example, Brookoff, Campbell, and Shaw (1993) reported evidence from police urine tests showing that more than half of the reckless drivers tested for drug use in one sample were under the influence of marijuana or cocaine.

Investigation of substance use and problem behaviors associated with use have led researchers to examine the relative contributions of various personality and cognitive variables. Promising prediction models have included implicit cognition (Stacy, 1995, 1997; Stacy, Ames, Sussman, & Dent, 1996; Stacy, Leigh, & Weingardt, 1994) and sensation seeking (Newcomb & McGee, 1991; Stacy, Newcomb, & Bentler, 1993; Zuckerman, 1994). These constructs appear to be motivationally relevant in the prediction of drug use and problem behaviors (e.g. DUI) and warrant further investigation in high-risk populations. The purpose of this research is to examine the relationships among sensation seeking, implicit cognition, substance use, and DUI in a drug offender population.

### *1.1. Sensation seeking as a predictor of drug use and problem behavior*

Sensation seeking appears to be a neurochemically based personality trait characterized by a need for stimulation, reflected in individuals likely to engage in risk-taking behaviors. Individuals relatively high in sensation seeking may have a biologically based need for stimulation, making them more vulnerable to substance abuse and more susceptible to the reinforcing effects of pleasurable stimuli, including the effects of drugs (Cloninger, 1994; Cloninger, Svrakic, & Przybeck, 1993; Hegerl, Lipperheide, Juckel, Schmidt, & Rommelspacher, 1995; Zuckerman, 1993). Sensation-seeking individuals may be more likely than others to seek out new experiences including experimenting with drugs to satisfy a desire for adventure and increased excitement (Wills, DuHamel, & Vaccaro, 1995; Zuckerman, 1993).

Sensation seeking as a construct predicts alcohol use (Stacy et al., 1993), smoking (Zuckerman, Ball, & Black, 1990), sexual behavior, and other substance use (Newcomb & McGee, 1991), as well as problem consequences of alcohol consumption (Stacy et al., 1991, 1993) and early-onset alcoholism (Cloninger, Sigvardsoon, & Bohman, 1988; Zuckerman, 1987). In a prospective study, Stacy et al. (1993) found that sensation seeking predicted driving under the influence and alcohol use [though a later longitudinal study found sensation seeking had no predictive effect on marijuana use (Stacy, 1997)]. Evidence also suggests an indirect role for sensation seeking. Johnson and White (1989) determined that the coping use of substances mediated the effect of a risk-taking orientation (a modified combination of the disinhibition and experience-seeking subscales of Zuckerman's sensation seeking scale) on intoxicated driving behaviors. Individuals scoring higher on sensation seeking measures have been found to be among those who drive faster, drive while intoxicated, and have more accidents than those who score low on sensation seeking measures (Zuckerman, 1994). It seems probable that individuals high in sensation seeking are less likely to anticipate the negative consequences of risk-taking behaviors because they are motivated by an increased susceptibility to reinforcing effects or the need to increase arousal levels. High sensation seekers are more likely to engage in risky behaviors (e.g. drug use, driving under the influence) to satisfy sensation-seeking needs or to obtain desired outcomes. In the present study, it is expected

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