

Although numerous studies have demonstrated reliable relationships between various human performance measures and time-of-day, disagreement continues concerning the shape of these relationships and their dependence on task variables. Most perceptual-motor tasks used have emphasized responses to exteroceptive stimuli. We report on the use of a multiple forceband discrimination task (MFDT) that requires the human operator to use both exteroceptive and proprioceptive information. Results indicate that correct task responses were associated with longer response latencies. Caffeine increased morning latencies and correct responses and reduced afternoon latencies and correct responses. The association between response latency and correct responses may be mediated by attention effects of time-of-day and caffeine. Our results also replicate the unique MFDT time-of-day effects we found in a previous study.

**NICOTINE'S EFFECT ON AROUSAL IN SMOKERS IS DEPENDENT ON BASELINE LEVEL OF AROUSAL.** Kenneth A. Perkins, Leonard H. Epstein, Richard L. Stiller, Joan E. Sexton and Rena Solberg. University of Pittsburgh, PA.

In order to better explain the commonly reported opposite effects of nicotine on subjective vs. cardiovascular arousal ("nicotine paradox"), 10 male smokers were divided into High and Low Baseline (BL) subgroups based on median split of BL self-reported subjective state and on BL cardiovascular measures (heart rate, blood pressure). Subjective measures included a 14-item Arousal scale, "Positive" visual analog scale (VAS) items such as "Relaxed," and "Negative" VAS items such as "Jittery." In 2 counter-balanced sessions, nicotine (15 µg/kg) or placebo was presented via measured dose nasal spray every 20 min for 2 hr and measures taken after each of the six presentations. Results confirmed that magnitude (and in some cases direction) of nicotine's subjective effects were dependent on BL level. Increase in systolic blood pressure was also dependent on BL level, but not diastolic blood pressure or heart rate. No changes were seen following placebo, arguing against a nonspecific explanation for results (e.g., regression to the mean). These results are discussed in light of the phenomenon of rate-dependent drug effects.

#### PAPER SESSION

*Psychological and Psychiatric Issues in Psychopharmacology*  
Chair: John R. Hughes, University of Vermont, Burlington, VT

**BEHAVIOR THERAPY TREATMENT OF HOSPITALIZED POLYDIPSIC SCHIZOPHRENIC PATIENTS.** Mary E. DeFerriere. Children's Psychiatric Unit, Austin State Hospital, Austin, TX; Deborah Stanley. University of Austin, TX.

Psychogenic polydipsia is defined as the drinking of large volumes of fluids for no apparent reason. It occurs almost exclusively in psychiatric patients who lose their ability to excrete water adequately, resulting in fluid retention with various symptoms and complications. This symposium will discuss both the symptoms of polydipsia and problems in differential diagnosis. Both the pharmacological and psychological management of polydipsia among chronically hospitalized schizophrenic patients within the Adaptive Daily Living Skills Unit of the Austin State Hospital will be reviewed. Research findings of a ten-month study on the effects of a specific behavioral therapy program for problematic behaviors, specifically for this presentation fluid intoxication, will be discussed.

**INCIDENCE OF PSYCHIATRIC DISORDERS AMONG INDIVIDUALS TREATED FOR CHEMICAL DEPENDENCY.** Mary Heilbronn.

Thirty-five volunteers with a recent history of chemical dependency were studied at the termination of a residential treatment program to determine incidence of psychiatric disorders, current and lifetime, among both subjects and their families. The Diagnostic Interview Schedule revealed that 89% of the subjects met criteria for one or more psychiatric disorders. The most heavily loaded diagnoses were Generalized Anxiety Disorder and Antisocial Personality Disorder. Seventy-nine percent of the subjects had a positive first-degree family history of chemical dependency and/or mental illness. Findings suggest the need to provide enhanced awareness of comorbidity and to develop dual diagnosis treatment modalities.

**IMPULSIVITY AND SUBSTANCE ABUSERS: STATE VERSUS TRAIT?** J. M. Jensen, H. M. Pettinati, K. Meyers and V. N. Valliere. Carrier Foundation, Belle Mead, NJ.

Impulsivity is a well-documented characteristic of substance abusers (Lacey and Evans, 1986). Inpatients (n = 104) in treatment for cocaine and/or alcohol use disorders were assessed using self-control questions and the *Structured Clinical Interview for DSM-III-R Personality Disorders (SCID II)*. The aim was to determine whether these patients were more impulsive than controls, and if impulsivity is an enduring personality trait, or a temporary impulsive state. Addictions counselors served as controls. Data points were baseline and 1, 3 and 12 months after discharge. Significantly more patients were impulsive at baseline ( $p=0.01$ ) as compared to controls. Significantly fewer patients were impulsive 1 month after discharge ( $p=0.01$ ). Borderline personality disorder diagnoses were significantly related to high impulsivity scores ( $p=0.01$ ). Differences in impulsivity as a state versus trait have important treatment and prognosis implications in all stages of recovery.

**PSYCHOLOGICAL SYMPTOMS AND NEEDLE SHARING AMONG METHADONE PATIENTS.** David S. Metzger, George E. Woody, Dominick DePhillips, Patrick Druley and Helen Naveline. University of Pennsylvania, Philadelphia, Veterans Administration Medical Center, Philadelphia, PA.

Despite widespread knowledge of the methods of HIV transmission, needle sharing among intravenous drug users (IVDU) remains a significant problem. Three hundred seventy-nine methadone patients were surveyed regarding their recent needle-sharing behavior. A wide range of patient characteristics was used to identify those patient factors associated with needle sharing. Overall, our data identified characteristics associated with recent needle sharing which may be important considerations in understanding continued high-risk behavior. These characteristics included more arrests and legal difficulties, more severe drug problems, and higher levels of psychiatric symptomatology. When considered together these features describe a group which may require more aggressive interventions than have thus far been implemented.

#### PAPER SESSION

*Psychopharmacology of Stimulants and Their Antagonists*  
Chair: Alison H. Oliveto, University of Vermont, Burlington, VT

**DISTINGUISHING BETWEEN D1 AND D2 ANTAGONISTS' BEHAVIORAL EFFECTS.** Stephen C. Fowler, J. Michael Chase, Ruey M. Liao, Paul D. Skjoldager, Susanne A. Beatty, Julie S. Johnson, Laura R. Johnson and Michael R. Durnam. University of Mississippi, University, MS.

The effects of dose ranges of haloperidol and raclopride (both are D2 dopamine receptor blockers), SCH23390 (a D1 antagonist), and clozapine (an atypical neuroleptic) on rats' operant response rate, duration, and force were examined under two different response topographies and two different levels of required force. Appropriate quantitative methods permitted the comparison of drug effects on force and duration at doses of each drug that produced equivalent rate reductions. The D2 blockers were characterized by dose-related elevated force and lengthened duration, while SCH23390 affected neither of these measures. (Supported by MH43429.)

**EVIDENCE FOR AND AGAINST CONSIDERING CAFFEINE A DRUG OF DEPENDENCE.** John R. Hughes, Alison H. Oliveto, Stephen T. Higgins and Warren K. Bickel. University of Vermont, Burlington, VT.

There is strong human experimental evidence that caffeine is psychoactive, can serve as a reinforcer and can produce withdrawal effects. The evidence for tolerance is less robust. There is no, or poor, clinical evidence that coffee users have difficulty stopping caffeine use, have craving upon cessation, lose control over caffeine use or develop physical or psychological problems from caffeine use. The results of well-designed clinical studies are needed before a decision on whether, in some individuals, caffeine use can be considered a form of drug dependence.

**PREDICTIVE POWER OF THE COCAINE EXPECTANCY QUESTIONNAIRE.** Adam J. Jaffe. Yale University, New Haven, CT; M. Marlyne Kilbey. Wayne State University, Detroit, MI; Gerald Rosenbaum. University of California at San Diego, San Diego, CA.

The current study explored the ability of the Cocaine Expectancy Questionnaire (CEQ) to predictively discriminate cocaine abusers from nonusers. The CEQ subscales demonstrated highly significant discriminative power. The linear discriminant function predicted abusers vs. nonusers with 87-89.5% accuracy. The expectancy scales that demonstrated significant predictive power include physiological sensations, grandiosity, physical functioning, relaxation, antisocial and aggressive behavior and sexual functioning. In addition, abusers and nonusers had significantly different mean scores on eight of the eleven CEQ subscales. Etiological implications are discussed.

#### **PAPER SESSION**

*Effects of Methylphenidate on Attention Deficit Disorder*

Chair: *Mark D. Rapport*, State University of New York Medical School at Stony Brook, Stony Brook, NY

**ATTENTION DEFICIT DISORDER: METHYLPHENIDATE DOSE-RESPONSE EFFECTS ON CLASSROOM BEHAVIOR.** Mark C. Rapport. SUNY Stony Brook, Stony Brook, NY.

This multi-year investigation was designed to examine the effects of methylphenidate (MPH) at four doses (5, 10, 15, 20 mg) on the attention, academic efficiency, and teacher-rated behavior

of 84 children with Attention Deficit Disorder/Hyperactivity (using direct observations), and to compare these effects to functioning under baseline and placebo conditions. MPH significantly improved all areas of classroom functioning in a linear, dose-dependent fashion. Intermediate and individual level analyses, however, indicate a wide range of optimal responses across subjects. Implications for the construction of individual dose-response potency profiles and the ability to predict behavioral response are discussed.

**ATTENTION DEFICIT DISORDER: DOES METHYLPHENIDATE NORMALIZE CLASSROOM FUNCTIONING?** George DuPaul. University of Massachusetts Medical School, Worcester, MA.

This study was designed to investigate whether methylphenidate (MPH) normalizes the classroom behavior and academic performance of children with Attention Deficit Disorder (ADD). MPH was found to significantly reduce the intrasubject variability in task-related attention of 30 children with ADD. Further, teacher ratings of ADD behavior and children's attention to academic tasks were improved to the extent that these measures were no different from those obtained by a Normal Control group of 25 children. Alternatively, the academic performance of ADD students was improved, but not to the point of normalization, thus implicating the need for adjunctive interventions.

**METHYLPHENIDATE: EMERGENT SYMPTOM PROFILE OF DOSE-RESPONSE EFFECTS IN ADDH CHILDREN.** Kevin Kelly and Mark Rapport. SUNY Medical School at Stony Brook, NY.

This study was designed to assess treatment emergent symptoms in children with Attention Deficit Disorder/Hyperactivity treated with methylphenidate (MPH). Sixty children participated in a double-blind, placebo control, within-subject design in which each subject received four doses of MPH (5, 10, 15, 20 mg) and a placebo in a counter-balanced order (following baseline) and was rated by their parent on three emergent symptom scales. Scale items were reduced to factor scores and subjected to both group and individual analyses. Results indicated significant *reductions* in severity ratings from baseline to placebo, as well as to most active medication conditions.

#### **PAPER SESSION**

*The Psychopharmacology of Alcohol*

Chair: *Stephen Fowler*, University of Mississippi, University, MS

**ANALYSIS OF AMNESIA FOLLOWING ALCOHOL WITHDRAWAL.** J. R. Gerrein. Choate Symmes Hospitals, Woburn, MA.

The study examined the memory changes that occur in alcoholic patients during the first 13 days following hospital admission requiring alcohol detoxification. In an independent groups design of 50 patients, 9- and 3-day groups performed significantly better than the 5-day group on several Wechsler Memory Quotient Measures, with older subjects recovering most slowly. The number of years since first detoxification was related to increased Visual Reproduction impairment and to a retrieval deficit in short-term verbal memory, while depression score was related to storage deficits. Practical and theoretical implications are discussed.