

Regular article

## Gender differences in cue exposure reactivity and 9-month outcome

Robert C. Sterling, Ph.D.<sup>a,\*</sup>, Jessica Dean, Psy.D.<sup>a</sup>, Stephen P. Weinstein, Ph.D.<sup>a</sup>,  
Jennifer Murphy, M.A.<sup>a</sup>, Edward Gottheil, Ph.D., M.D.<sup>b</sup>

<sup>a</sup>Department of Psychiatry and Human Behavior, Division of Substance Abuse Programs, Thomas Jefferson University, Philadelphia, PA, USA

<sup>b</sup>Department of Psychiatry, University of Washington, Seattle, WA, USA

Received 6 September 2003; received in revised form 11 March 2004; accepted 26 March 2004

### Abstract

Gender differences have been shown to be related to the course of cocaine dependence and treatment. While previous research has shown cue exposure procedures to be somewhat effective at reducing reactivity of substance dependent individuals to drug related stimuli, the few studies that have examined gender differences in craving and cue-reactivity have yielded equivocal results. We have recently demonstrated that an active cue-exposure procedure that featured cocaine-dependent individuals receiving immediate feedback about their level of physiological arousal following videotaped exposure to cocaine-related stimuli was capable of positively influencing in-treatment (helplessness, abstinence efficacy) as well as 9-month followup outcome (i.e., urinalysis) indices (Sterling, R., Gottheil, E., Murphy, J., & Weinstein, S. (2001). Cue exposure and abstinence efficacy. *College on Problems of Drug Dependence*, Phoenix, AZ, June 17, 2001). The purpose of the present study was to determine whether differential in-treatment or 9-month followup outcomes were obtained for male and female study participants. Subjects in this study were 81 individuals (47 male/34 female) who met DSM-IV criteria for cocaine dependence and who had consented to be randomly assigned to either the active cue-exposure or control conditions. Participants were compared along a myriad of pre-treatment, in-treatment, and 9-month followup measures. Other than males reporting more recent employment, there was no obvious systematic pattern of differences on pre-treatment indices. No gender differences in treatment retention were observed. With respect to 9-month followup, no gender differences on measures of addiction severity, psychological functioning, or urinalyses were noted. However males were more “cue-reactive” and more successful at establishing control over their reactivity to the cocaine stimuli. Additional research is needed to determine whether these differences in reactivity can be more clearly defined and utilized positively in a treatment setting. © 2004 Elsevier Inc. All rights reserved.

*Keywords:* Cue exposure; Cocaine addiction; Treatment retention; Gender differences

### 1. Introduction

Research studies on the treatment of addiction have indicated that outcomes may be improved by targeting treatment strategies to specific sub-populations of treatment-seeking substance-abusing individuals (Grissom, 1997; McLellan et al., 1997; Project Match Research Group, 1997). For example, patient gender has been implicated as a factor that influences both the course and treatment of cocaine dependence (Fiorentine & Hillhouse, 1999; Griffin, Weiss, Mirin, & Lange, 1989; Lundy, Gottheil, Serota, Weinstein, & Sterling, 1995; McCance-Katz,

Carroll, & Rounsaville, 1999; Weiss, Martinez-Raga, Griffin, Greenfield, & Hufford, 1997). McCance-Katz et al. (1999) demonstrated that women tended to favor a more addictive route of drug administration and, as a consequence, experienced a more rapid deterioration in the quality of their lives and addictive behaviors. Similarly, other studies (Griffin, Weiss, Mirin, & Lange, 1989; Weiss, Mirin, Griffin, Gunderson, & Hufford, 1993) have reported evidence of more drug-related difficulties and psychopathology in cocaine dependent females. In contrast, others have not demonstrated the clinical significance of gender as a factor in the addictive process (Denier, Thevos, Latham, & Randall, 1991; Dudish & Hatsukami, 1996; Erikson & Murray, 1989; Lundy et al., 1995).

A recent promising approach to the treatment of cocaine addiction has involved progressive cue-exposure in which patients' subjective and objective responses to drug related

\* Corresponding author. Department of Psychiatry and Human Behavior, Thomas Jefferson University, 1021 South 21<sup>st</sup> St., Philadelphia, PA 19146. Tel.: +1-215-790-9942; fax: +1-215-790-9947.

E-mail address: robert.sterling@jefferson.edu (R.C. Sterling).

stimuli are extinguished (Childress, McLellan, Ehrman, & O'Brien, 1987; O'Brien, Childress, McLellan, & Ehrman, 1990). In a series of recent studies, researchers have begun to quantify the degree to which gender is a factor in classical conditioning paradigms and the extinction of reactivity to drug related cues/triggers (Avants, Margolin, Kosten, & Cooney, 1995; Robbins, Ehrman, Childress, & O'Brien, 1999). For example, Elman, Karlsgodt, and Gastfriend (2001) examined differences in craving between 10 women and 11 men participating in an imaging study of the effects of cocaine on brain activity. Their results indicated that on a series of measures women both significantly craved cocaine more than men and were more reactive to drug related stimuli. Robbins et al. (1999) examined the physiological reactivity of a sample of DSM-III-R (American Psychiatric Association, 1987) diagnosed cocaine dependent individuals to drug-related stimuli, and found little difference in both subjective and objective reactivity to cocaine related stimuli presented via multiple methods (i.e., audio, video, and in-vivo). Similarly, results from Avants et al. (1995) indicated that methadone-maintained cocaine dependent women were no more likely to be responsive to cocaine related stimuli than a sample of male counterparts matched for addiction severity.

The purpose of the current study was to further research gender-based differences in cue reactivity and outcome. Using a variant of the cue-exposure procedure employed by Robbins et al. (1999), we examined whether male and female participants in a cue-exposure study that included providing direct feedback about arousal levels differed in both levels of physiological reactivity and their ability to establish control over reactivity to drug-related stimuli. In addition, we examined whether there were gender-related differences on measures of addiction severity and psychological well being (i.e., helplessness, abstinence efficacy), as well as 9-month followup outcomes (i.e., urinalysis, addiction severity indices).

## 2. Method

### 2.1. Participants

Eighty-one individuals (47 male/34 female) seeking voluntary admission for treatment of cocaine dependence at an urban, publicly funded, university-sponsored intensive outpatient cocaine treatment program were participants in this study. All participants met DSM-IV (American Psychiatric Association, 1994) diagnosis for cocaine dependence and consented to this adjunct to treatment that included random assignment to either an active cue-exposure or control condition. Appropriate internal review board approval was obtained from all participants.

The majority of participants were African-American (87.7%). Average age at admission was  $38.72 \pm 6.74$  years. Close to two thirds of the participants reported

never having been married. Study subjects completed on average 11 years of formal education. Regular full-time employment was reported by less than 10% of all study entrants; for those reporting employment, on average  $11.84 \pm 6.82$  months were worked in the last 2 years. Subjects reported on average  $8.44 \pm 9.54$  days of cocaine use in the month prior to admission. Patients reported having sought treatment at this or another site  $3.79 \pm 3.46$  times prior to the current admission. All participants reported smoking crack cocaine.

### 2.2. Design and procedure

At treatment admission, patients were evaluated for appropriate level of care placement. As part of this evaluation, detailed demographic information was obtained and patients completed the Addiction Severity Index (ASI; McLellan, Luborsky, & Cacciola, 1985), the Beck Depression Inventory (BDI; (Beck & Steer, 1986), the SCL-90R (DeRogatis, 1983) and the Risk for AIDS Behavior Inventory (RAB; Metzger, Woody, & DePhillippis, 1991). Following intake and assignment to 12 weeks of intensive outpatient treatment, patients were approached and asked if they wished to participate in a novel treatment study. Individuals were informed that if they volunteered they would be randomly assigned to either a control condition or a treatment condition that featured a modified cue-exposure procedure. Subjects in either condition were expected to attend 12 weekly 60-min sessions and complete study materials at 4, 8, and 12 weeks (see below). Thus, the overall design was a  $2 \times 4$  repeated measures factorial. All participants were compensated for participation in the study.

#### 2.2.1. Active cue exposure

Focus groups previously conducted by one of the authors (RCS) with in-treatment cocaine addicts identified a series of 10 stimuli and situations that were considered likely to produce renewed cocaine use. With patient assistance, a series of vignettes containing these ten cocaine-related stimuli were designed and professionally videotaped. These vignettes were designed to follow a roughly chronological sequence, moving from ideation, to cognition, to behavior (i.e., cocaine use). Pilot testing with an earlier sample of 30 cocaine-dependent individuals confirmed that this video-based model was successful at eliciting both objective (skin conductance) and subjective (cocaine craving) arousal (Sterling, Gottheil, Murphy, & Weinstein, 2001).

During the first active cue exposure (ACE) session, patients were placed in a quiet room and seated in a comfortable chair. The purpose and procedures, previously discussed at intake, were again explained and 7-point Likert scaled measures of cocaine craving were administered (Childress, Hole, & DePhillippis, 1991). Prior to connecting the electrodes and presenting the stimuli, subjects were told that changes recorded in measurements at their fingertips

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات