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# The association between heroin use and anxiety sensitivity among inner-city individuals in residential drug use treatment

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## Abstract

The current study represents an initial investigation of the association between heroin use and anxiety sensitivity (AS). Within a sample of 172 inner-city treatment seeking drug users, AS was compared across past year (1) heroin users with no crack/cocaine use ( $n = 12$ ); (2) crack/cocaine users with no heroin use ( $n = 66$ ); (3) users of both heroin and crack/cocaine ( $n = 45$ ); and (4) individuals with no use of heroin or crack/cocaine ( $n = 49$ ). Consistent with expectations, primary heroin users evidenced higher levels of AS than all other groups, with these differences also evidenced for the physical and social subscales. Differences in AS total score and physical subscale score persisted after controlling for demographic variables, depressive symptoms, and primary use of drugs other than heroin and crack/cocaine including alcohol, nicotine, marijuana, and hallucinogens. Findings suggest a unique relationship between AS and heroin, and set the stage for future work explicating the direction of the observed association.

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*Keywords:* Heroin; Crack/cocaine; Anxiety sensitivity; Assessment; Vulnerability

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## Introduction

Anxiety sensitivity (AS), defined as the fear of anxiety and anxiety-related sensations (Reiss & McNally, 1985), is a trait-like cognitive predisposition that can theoretically increase the risk of

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panic and other types of anxiety problems. Since the late 1980s, separate lines of research have generally supported the AS model of panic disorder vulnerability (see Taylor, 1999). More recent research suggests an association between AS and certain types of substance use patterns (see Otto, Safren, & Pollack, 2004; Stewart & Kushner, 2001; Zvolensky & Schmidt, 2004). Although the vast majority of work thus far completed in this domain has focused on alcohol-related problems (see Stewart, Samoluk, & MacDonald, 1999, for a review) and smoking (see Zvolensky, Schmidt, & Stewart, 2003, for a review), potential relationships between AS and other more severe types of drug use remain largely unexplored.

In considering the relationship of AS across drug classes, heroin represents a promising avenue of investigation. A handful of studies have indicated that individuals who regularly use heroin are at risk for elevated levels of anxiety and its disorders (Darke & Ross, 1997; Darke, Swift, & Hall, 1993; Grenyer, Williams, & Swift, 1992). These studies suggest an association between anxiety-related processes and regular heroin use, although no data are available for the processes that may underlie such a linkage. There are multiple reasons to expect an association between AS and chronic heroin use. First, researchers have thus far found that individuals high in AS tend to use substances to reduce negative affect symptoms (Novak, Burgess, Clark, Zvolensky, & Brown, 2003; Stewart, Karp, Pihl, & Peterson, 1997; Stewart, Zvolensky, & Eifert, 2002; Zvolensky & Leen-Feldner in press). Because heroin dampens central nervous system activity (Goodman & Gilman, 1991), it might be used as a powerful (short-term) agent to regulate negative emotional experiences, bodily arousal, and worry about forthcoming threatening events. Second, regular heroin use often results in physical dependence and corresponding withdrawal symptoms upon drug reduction or discontinuation (American Psychiatric Association, 1994). Heroin withdrawal symptoms tend to occur as early as a few hours after administration and include drug craving, restlessness, muscle and bone pain, insomnia, diarrhea and vomiting, cold flashes, and numerous other bodily sensations (American Psychiatric Association, 1994). In line with contemporary models of anxiety-drug comorbidity, one could suggest that high AS heroin users would be more apt to be worried about, and emotionally reactive to, such interoceptive withdrawal sensations (Zvolensky & Leen-Feldner, in press). Thus, a forward-feeding cycle may ensue, whereby heroin is used to regulate affect but drug reduction or discontinuation among regular users produces feared internal sensations that perhaps serve as obstacles to successfully quitting.

Given this backdrop, the overarching aim of the present descriptive investigation was to provide an initial evaluation of an association between heroin use and AS. One obvious challenge to this type of work is the difficulty in isolating heroin use from the frequently co-occurring use of other drugs, especially when studying more chronic or severe drug using individuals who typically have high rates of polysubstance use and abuse (Franken & Hendriks, 1997). In particular, many heroin users report using crack/cocaine which is a drug that might be expected to be related to AS in a manner quite different than heroin (Adams, Gfroerer, Rouse, & Kozel, 1987; Schnoll, Kerrigan, Kitchen, Daghestani, & Hansen, 1985). Indeed, in stark contrast to the pharmacological effects of heroin, crack/cocaine produces CNS arousal including a perceived increase in ability to engage in long-lasting physical or mental work without fatigue, a perceived decreased need for food and sleep, as well as a general state of euphoria. Given that the general effects of these two drug classes are on opposite ends of a spectrum (heroin having more calming and sedative effects whereas cocaine has a more stimulating and invigorating effect), it is not surprising that users of these drug classes may display stark differences on various individual

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