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Static and dynamic predictors of criminal involvement among people with heroin dependence: Findings from a 3-year longitudinal study



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ABSTRACT

Background: The link between heroin use and crime has been well established; however, there has been little opportunity to examine this relationship longitudinally. This study examines the relationship between static and dynamic predictors of criminal involvement, and the degree to which changes in dynamic risk factors moderate the risk of criminal involvement over time.

Method: Data were collected as part of the Australian treatment outcome study, a 3-year longitudinal study of 615 people with heroin dependence conducted in Sydney, Australia. Past-month criminal involvement (property crime, drug dealing, fraud, violent crime), demographic, drug use and mental health characteristics were assessed at each interview.

Results: Criminal involvement was consistently and independently predicted by lack of wage/salary as a main source of income, (OR 2.17), meeting diagnostic criteria for anti-social personality disorder (OR 1.91) and major depression (OR 1.41), screening positive for borderline personality disorder (OR 1.47), male sex (OR 1.44), a criminal history (OR 1.33), greater severity of dependence (OR 1.21), more extensive heroin use (OR 1.09), and younger age (OR 0.96) over the 3-year period.

Conclusions: These findings provide strong evidence of the robust nature of the association between more extensive heroin use, severity of dependence, the co-occurrence of mental health conditions, and an individual's capacity for employment, and criminal involvement. Interventions aimed at increasing an individual's employability and improving mental health in particular, may reduce the risk of criminal involvement among people with heroin dependence.

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1. Introduction

The association between illicit drug use and crime and the adverse impact of these events has been well established internationally (Bennett and Holloway, 2005). Heroin use, in particular, has posed a significant challenge due to its association with acquisitive crime. Heroin use and dependence are strongly and independently associated with criminal involvement (Inciardi, 1979; Ball and Ross, 1991; Ball et al., 1981), and frequency of use has been positively associated with number of arrests and convictions (Stewart et al., 2006). The relationship between heroin use and crime however, is complex, and there is some contention in the literature regarding the direction of this relationship (Goldstein, 1985; da Agra, 2002; Grella et al., 2009).

It is, however, generally agreed that risk of criminal involvement varies between individuals, and that this risk may fluctuate over time due to changing circumstances; that is, the risk of criminal

involvement may be related to both static and dynamic risk factors (Douglas and Skeem, 2005). Static, or fixed, risk factors are stable attributes of an individual that do not change (e.g., date of birth, sex, past life events). Dynamic, or time-varying factors, however, are mercurial in nature. They may naturally vary over time, or with the influence of changes in other social, psychological, biological, or contextual factors (Douglas and Skeem, 2005). The identification of static and dynamic risk factors for criminal involvement is important for clinical, forensic and corrective services in assessing a person's risk, as well as identifying factors that may be the target of interventions designed to reduce risk of criminal recidivism.

There has been much research on the prevalence and correlates of heroin use and crime, particularly examining static risk factors. This research has shown that young males, from unstable family backgrounds, with lower levels of education are at increased risk of engaging in criminal activity (Freeman, 2000; Raphael and Winter-Ebmer, 2001; Lochner, 2004; Allard et al., 2012). The predominance of research examining dynamic risk factors has focused on the impact of treatment (primarily methadone and other pharmacotherapies) on criminal involvement. These studies have consistently demonstrated a positive association between treatment retention and reduced criminal activity (Bell

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et al., 1997; Gossop et al., 2000; Hubbard et al., 2003; Stewart et al., 2006). Other dynamic risk factors that may serve to moderate the relationship between heroin use and crime include unemployment, level of substance use (including the type of substance(s) used, quantity and frequency of use, and severity of dependence), and the presence of comorbid mental health conditions (Hernandez-Avila et al., 2000; Bennett and Holloway, 2005; Stewart et al., 2006; Fridell et al., 2008; Grella et al., 2008, 2009). However, research that has examined the relationship between dynamic risk factors and criminal involvement has illustrated mixed findings with regard to the presence and direction of associations between variables. With the exception of employment status, level of education, and substance use, few dynamic factors have consistently been shown to relate to criminal involvement (Tittle and Meier, 1990; Cullen et al., 1997; Hernandez-Avila et al., 2000; Andrews and Bonta, 2003; Fridell et al., 2008). These inconsistent findings may, in part, be due to differences between studies in the populations under investigation and measurement instruments used. However, the cross-sectional nature of research to date also fails to capture the dynamic and complex nature of the relationship between variables that are susceptible to considerable within-subject variation. These relationships are only able to be captured by prospective longitudinal studies. There has been, however, a notable lack of such research examining predictors of criminal involvement among people with heroin dependence.

Naturalistic longitudinal studies provide a unique opportunity to investigate whether various static and dynamic risk factors are consistently associated with criminal involvement over time, and the degree to which changes in dynamic risk factors may moderate risk of criminal involvement. A small number of pioneering studies have been conducted in Europe and the United States (Hubbard et al., 2003; Stewart et al., 2006; Comiskey and Stapleton, 2010). While the data were collected longitudinally, with the exception of Hubbard et al. (2003), the analyses were largely cross-sectional. Furthermore, all of these studies conducted analyses on complete-cases only (respondents who had completed all interviews at all time points), which may introduce bias towards those who are better functioning (Sterne et al., 2009).

The Australian treatment outcome study (ATOS) was a 3-year longitudinal study of the natural history of heroin dependence. Six hundred and fifteen treatment seeking and non-treatment seeking people with heroin dependence were recruited and interviewed on up to five occasions over 3 years (Teesson et al., 2007). Crime was highly prevalent at baseline (54.7%), but declined to 15.2% at the 3-year follow-up. Consistent with previous research (Bell et al., 1997; Gossop et al., 2000; Hubbard et al., 2003; Stewart et al., 2006), the reduction in criminal activity was associated with increased treatment retention. Using data collected as part of ATOS, the present study aimed to extend these findings to identify static and dynamic risk factors (including demographic, substance use, and mental health characteristics) associated with criminal involvement among people with heroin dependence. In particular, this study was the first to examine whether static and dynamic risk factors were consistently associated with criminal involvement over time, and the degree to which changes in demographic characteristics, substance use and mental health symptoms moderate the risk of criminal involvement.

2. Method

2.1. Procedure

Baseline data were collected between 2001 and 2002 (Ross et al., 2005). The cohort consisted of 615 people with heroin dependence, 535 of whom were recruited from 19 agencies treating heroin dependence in the greater Sydney region (201 entering

maintenance therapies, 201 entering detoxification, and 133 entering residential rehabilitation). Agencies were selected randomly from within treatment modality and stratified by regional health area. The agencies represent the major treatment modalities available for heroin dependence in Australia and included 10 methadone/buprenorphine maintenance agencies, four drug-free residential rehabilitation agencies and nine detoxification facilities. Four agencies provided both maintenance and detoxification services, and a comparison group of people with heroin dependence who were not currently in treatment were recruited from needle and syringe programmes ($n = 80$).

Follow-up interviews were conducted with 549 (89.3%), 495 (80.5%), 469 (76.3%) and 429 (69.8%) individuals at 3-, 12-, 24- and 36 months respectively (94.5% completed at least one follow-up interview). A further 17 (2.8%), 31 (5.0%), 27 (4.4%), and 36 (5.9%) participants were known to be incarcerated at each follow-up point respectively, and were not interviewed.

Teesson et al. (2007) examined factors associated with retention in the sample, including index treatment modality, age, sex, previous treatment history, number of heroin use days in the preceding month, number of drug types used in the preceding month, major depression, current post-traumatic stress disorder (PTSD) symptomatology, antisocial personality disorder (ASPD) and borderline personality disorder (BPD). The samples re-interviewed at each follow-up were broadly representative of the initial sample of 615 enrolled in ATOS, the only notable difference being that females were more likely than males to be retained at 3 months [94.7% versus 86.5%; odds ratio (OR) 2.88, 95% confidence interval (CI): 1.42, 5.85] and 24 months' follow-up (81.3% versus 73.7%; OR 1.66, 95% CI: 1.06, 2.59). Further examination of the data revealed that those who had engaged in crime in the month prior to baseline were also less likely to be retained at 3 months (86.6% versus 92.4%; OR 0.53, 95% CI: 0.31, 0.91), and individuals with a history of imprisonment were less likely to have been followed up at all-time points (OR 0.46, 95% CI: 0.34, 0.63).

Participants were recompensed A\$20 for completing each interview. Ethical approval was obtained from the University of New South Wales Human Research Ethics Committees and participating area health services.

2.2. Structured interview

Structured interviews were administered to participants at baseline and at each follow-up utilising measures with established psychometric properties. Baseline interviews addressed demographic characteristics, treatment and drug use (including heroin and other opiates, alcohol, marijuana, benzodiazepines, amphetamines, and cocaine), criminal involvement, in addition to major depression, PTSD, BPD, and ASPD.

Past-month drug use and criminal involvement were assessed using the Opiate Treatment Index (OTI; Darke et al., 1992). For each drug type used, a Q score is derived based on the quantity and frequency of use in the past month (higher scores are indicative of more extensive use of the drug). DSM-IV diagnoses of current heroin dependence and past-month major depression were obtained using the Composite International Diagnostic Interview version 2.1 (CIDI; World Health Organisation, 1993). Lifetime diagnoses of PTSD, ASPD, and BPD were assessed at baseline. DSM-IV diagnoses of ASPD were obtained using a modified version of the Diagnostic Interview Schedule (Robins et al., 1981); participants were screened for ICD-10 BPD using the International Personality Disorders Examination Questionnaire (Loranger et al., 1994); and DSM-IV diagnoses of lifetime PTSD were obtained using the CIDI (World Health Organisation, 1993).

The sections pertaining to demographics, drug use, criminal involvement, and depression were reassessed at each follow-up

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