



Behavioural Stimulation and Sensation-Seeking among prisoners: Applications to substance dependency



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ABSTRACT

Background: Sensation-seeking among prisoners with substance dependence difficulties (drug and/or alcohol) was examined. This topic is under-researched in a prisoner sample.

Aims: The aims are to examine the association between sensation-seeking, other personality variables, and substance dependency among prisoners, and to examine if sensation-seeking can be refined.

Methods: Adult male prisoners ($n = 200$) completed self-report measures examining the constructs of interest. **Results:** Sensation-seeking comprised extraversion and openness to experience. It was more appropriately described as Behavioural-Stimulation-and-Sensation-Seeking (BStim-SS). BStim-SS is related to drug and poly-substance dependency but not alcohol-only dependency. Increased impulsivity was related to all substance use dependencies.

Conclusions and implications for practise: BStim-SS presents as a valuable concept to apply to forensic populations. It captures the need for behavioural and emotional stimulation and lends support to Reward Discounting theory as valuable concept to apply across substance dependency. Implications for practise include:

- A need to identify a broader concept of sensation-seeking for prisoner samples;
- The recognition of differences within substance dependent samples, with impulsivity presenting differently across drug and/or alcohol dependent groups;
- Recognition that concepts regularly applied to community samples need to be examined more specifically among forensic samples to ascertain validity.

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1. Introduction

Sensation-seeking has been described as one of the most potent predictors of substance use (e.g. Donohew, Bardo, Zimmerman, & Stelmack, 2004; Ersche, Turton, Pradhan, Bullmore, & Robbins, 2010; Horvath, Milich, Lynam, Leukefeld, & Clayton, 2004). Sensation-seeking is described as a need to seek out varied, novel, complex, and intense situations, and a willingness to take risks for these experiences (Zuckerman, 2007). It is closely related to other personality constructs associated with substance use, such as impulsivity (e.g. Acton, 2003; Ersche et al., 2010; Moeller et al., 2002), openness to experience and extraversion (Grekin, Sher, & Wood, 2006), with considerable cross-over across these constructs (Depue & Collins, 1999; Kelly et al., 2006; Sher & Trull, 1994; Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993). For example, some researchers have suggested that extraversion is an

indirect test of sensation-seeking (Sher & Trull, 1994), with impulsivity a reconceptualised 'adult' form of sensation-seeking (Clayton, Segress, & Caudill, 2007). This poses the question as to whether these constructs are distinct, or if they are in fact best described as a single more unified personality concept of particular relevance to substance use. This is not an issue that research has addressed using statistical methods, certainly not within populations known to present with an elevated need for stimulation (e.g. prisoners). In addition, the association between sensation-seeking and substance use is not uniform, with some research indicating that although sensation-seeking may have a direct route to increasing involvement in substances, this may apply to alcohol and only indirectly to a use of drugs (Puente, Gutiérrez, Abellán, & López, 2008).

The theoretical basis for considering sensation-seeking is clearly defined, with a number of theories independently discussing this as a factor promoting engagement in substances. Across recent years the field has moved towards presenting 'new' models or frameworks with no mention or testing of founding theory (Puente et al., 2008). This has resulted in the loss of examination of some earlier theories and a move towards more descriptive atheoretical papers. This is particularly common among non-community samples known to be at an

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increased risk for substance use difficulties, such as prisoners. Four theories that are particularly helpful in informing theory-driven predictions that could apply to sensation-seeking and substance dependency include the *Personality-Deficiency Theory* (e.g. Ausubel, 1980), *Multiple Models Theory* (e.g. Gorsuch & Butler, 1976), *Addiction to Pleasure Theory* (e.g. Bejerot, 1975) and *Reward-Discounting* (e.g. Smillie & Jackson, 2006).

Personality-Deficiency Theory (PDT) proposes that sustained drug use is a consequence of an initial need for euphoria by an inadequate personality, which is then sustained by a need to continue use in order to avoid unpleasant abstinence symptoms. The need for a 'high' can result in drug users deliberately delaying gratification in order to achieve a greater sense of stimulation/euphoria (Ausubel, 1980). According to PDT, an increased sensation-seeking tendency, coupled with an increased drive for openness to experience and extraversion, should be apparent more among chronic than non-chronic or non-users. Chronic use in this instance incorporates dependency. Certainly, personality is argued to be related to sustained patterns of behaviour, as opposed to more occasional behaviours, thus fitting expectations of substance dependency as opposed to more casual or occasional substance abuse. Indeed, substance dependency has been associated clearly with personality (Freestone, Howard, Coid, & Ullrich, 2013; Mehdizadeh Zare Anari & Hajhoseini, 2012), particularly within more specialised samples where presentations are complex. Such samples include forensic populations (Hopley & Brunelle, 2012). The association between maladaptive personality and dependency has been noted both for alcohol dependency only (Agrawal, Narayanan, & Oltmanns, 2013), and for drug dependency (Hicks, Durbin, Blonigen, Iacono, & McGue, 2012).

As noted, PDT suggests users have an ability to *delay* gratification in order to enhance an effect. This suggests that reduced impulsivity should be more apparent among chronic and polydrug users, since they should have an ability to delay gratification for a more enhanced reward of later [increased] euphoria. Thus you would expect increased sensation-seeking, openness to experience and extraversion to represent the over-riding contributing factors to their 'inadequate' personality as opposed to increased impulsivity. Nonetheless it has, conversely, been argued that sensation-seeking may promote impulsive behaviour which in turn increases the risk for drug but not alcohol use (Puente et al., 2008), with further studies indicating elevated anxious-impulsive personality traits among drug-dependent users in comparison to healthy volunteers, with higher levels of sensation and reward-seeking personality in drug dependent groups than their siblings (Ersche et al., 2012). This has also posed a further question, namely whether or not impulsivity is really a distinct concept, or if it is simply part of a broader conceptualisation of sensation-seeking.

Addiction to Pleasure Theory (APT) seems to support PDT by adding to the importance of sensation-seeking as a crucial element. APT describes how it is biologically normal for a pleasure stimulation to continue once it has begun and to be positively reinforcing, thus encouraging sustained use (e.g. Bejerot, 1975). There are further reports that sensation-seeking has a heritable biological basis (Bardo et al., 2007; Puente et al., 2008; Zuckerman, 2003). Thus, not only should sensation-seeking be associated with drug use, but it should also be associated more with those showing increased and sustained levels of drugs, including poly-drug users.

Multiple Models Theory (MMT) (e.g. Gorsuch & Butler, 1976) adds further to these models by describing one pathway particularly relevant to a forensic population, namely the 'nonsocialised' route. Via this route individuals low on conformity and responsibility continue their drug use as a result of drug availability and a sensation-seeking motivational drive. MMT describes how psychological dependence on a drug may be in part influenced by the 'rush' associated with drug intake, suggesting again how a need for sensation may represent a core feature. Impulsivity and sensation-seeking have certainly been shown to relate to a range of criminal behaviours (e.g. Horvath & Zuckerman, 1992; Lynam et al., 2000), highlighting the importance of examining these constructs and their association with substance use in a forensic population.

Indeed alternative theories do place emphasis on a distinct role for impulsivity as a contributing factor in substance use. *Reward Discounting Theory* (e.g. Smillie & Jackson, 2006), for example, describes a role for immediate gratification with substance use, assuming that individuals will discount future rewards and instead choose the immediate reward. This would point to users *failing* to delay their use of drugs in order to increase the eventual euphoria, and not to them increasing the delay. Indeed among alcohol users, Richards, Zhang, Mitchell, and De Wit (1999) stated that the delayed reward often becomes less certain for the individual so they may feel more inclined to accept the smaller more immediate reward, which is more certain. Their research found that delay discounting was positively linked to increased levels of impulsivity. This was supported by Kirby and Petry (2004) who, examining heroin, cocaine and alcohol users, found cocaine and heroin users had higher levels of delay discounting (and therefore higher impulsivity) than controls. Other studies have also suggested an application to alcohol, with delay discounting (and thus impulsive decision making) associated with alcohol misuse (Ortner, MacDonald, & Olmstead, 2003), although this research is not consistent.

The current study is interested in exploring sensation-seeking in a forensic (prisoner) sample and in determining its relationship to impulsivity, openness to experience and extraversion, focusing on application to alcohol and drug dependency (Puente et al., 2008). It will do this by employing statistical methods that will examine the factorial construct of sensation-seeking. It makes the following predictions; 1) Sensation-seeking will comprise components relating to impulsivity, openness to experience and extraversion; 2) In accordance with PDT both increased sensation-seeking and decreased impulsivity will predict drug dependency; 3) In accordance with PDT, APT and MMT, sensation-seeking should contribute more than impulsivity to models predicting dependent drug use; 4) In accordance with RDT it is predicted that increased impulsivity should be predictive more of alcohol than other drug dependency.

2. Method

2.1. Participants

A total of 448 adult male prisoners were approached to take part from a Category B (medium to high security) prison. Two hundred questionnaires were returned completed, representing a 44.6% return rate. The average age of the sample was 36.10 ($SD = 10.2$).

2.2. Measures

Each participant completed the following measures:

Drug Abuse Screening Test (DAST-20: Gavin, Ross, & Skinner, 1989). This consisted of 20 statements asking for information about drug use. The statements were answered in relation to their drug use in the 12 months prior to custody. Participants were asked to indicate 'yes' or 'no' to each item. Each item scored to support drug abuse was rated as a 1. Examples of items included "Have you ever felt bad or guilty about your drug abuse" and "Have you lost friends because of your use of drugs". A score of six and above is used to indicate problematic drug use with two items specifically focused on assessing dependency in addition to abuse. This measure assesses problematic use, including dependency, and does not produce a 'diagnosis'.

Alcohol Use Disorder Identification Test (AUDIT: Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). This was developed by the World Health Organisation and consisted of ten statements, each rated on a scale of 0 to 5, with five indicating increased frequency and 0 reduced/no evidence. As with the DAST, questions focused on

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