Assessing the component structure of four self-report measures of impulsivity

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Received 13 February 2003; received in revised form 11 August 2003; accepted 15 September 2003
Available online 30 October 2003

Abstract

This study examined the component structure of impulsivity, by Principal Components Analysis of 12 subscales, from four widely used self-report measures of impulsivity. Two hundred and forty five subjects from the UK general population completed the Eysenck Impulsiveness Scale (Eysenck, Pearson, Easting, & Allsopp, 1985), the Dickman Impulsiveness Scale (Dickman, 1990), Barratt’s Impulsiveness Scale (Patton, Stanford, & Barratt, 1995) and the BIS/BAS scales (Carver & White, 1994). Analysis of the subscales provided evidence in support of a three-component structure of impulsivity. Components were labelled Non-Planning Dysfunctional, Functional Venturesomeness and Drive/Reward Responsiveness.

Keywords: Impulsivity; Assessment; Principal component analysis

1. Introduction

Various operational definitions of impulsivity have been proposed, each highly dependent on theoretical presuppositions (Pulkinnen, 1986). Studies have highlighted the lack of consensus about the theoretical underpinnings of impulsivity, the number of, and content of dimensions that constitute the construct (Gerbing, Ahadi, & Patton, 1987; Parker, Bagby, & Webster, 1993).
Given these differences in both terminology and theory, it is unclear whether various measures which aim to operationalise models of impulsivity are empirically distinct, or whether they are in fact highly related measures tapping the same construct. In order to investigate this issue, the aim of the present study is to analyse the component structure of four widely used self-report measures of impulsivity; the Dickman Impulsivity Inventory (DII), the Eysenck Impulsiveness Questionnaire (I7), the Barratt Impulsiveness Scale (BIS-11) and Carver and White's BIS/BAS scales.

Examination of various definitions of impulsivity highlight the difficulties faced when attempting to measure the construct. Some definitions describe the relationship between inadequate thought and future actions, such as that of Dickman, who defines impulsivity as the tendency to deliberate less than most people of equal ability before taking action (Dickman, 1990). Other definitions may incorporate the concept of risk taking behaviour, as does Eysenck, for whom impulsivity is a characteristic of people who act on the spur of the moment without being aware of any risk involved (Eysenck & Eysenck, 1985; Eysenck, Easting, & Pearson, 1984). Coles (1997) describes impulsivity at a multi-faceted level, as involving an impulse, the behavioural expression of that impulse, and the situation in which both occur.

A number of studies have investigated the structure of the impulsivity construct. Gerbing et al. (1987) identified three broad dimensions among self-report scales and behavioural measures of impulsivity. The first of these encapsulates a tendency to engage in spontaneous thoughts/behaviours, which could be otherwise labelled as restlessness or distractibility. A second broad dimension included in the measures was a tendency to be disorganised and unprepared in everyday activities. Thirdly, a group of items were identified which could be labelled as having carefree or happy-go-lucky attitudes and behaviours.

Parker et al. (1993) describe a Principal Components Analysis of the impulsivity subscales of three widely used personality measures. The study revealed that the subscales of the Multi-Dimensional Personality Questionnaire (MPQ; Tellegen, 1982) and the Guilford–Zimmerman Temperament Scale (GZTS; Guilford, Zimmerman, & Guilford, 1976), which were both developed as unidimensional scales, were in fact comprised of two similar structures, a cautious and a spontaneous factor, suggesting impulsivity could best be explained by a two-component model. This and other studies (White et al., 1994) suggest that impulsivity can be viewed as having multiple dimensions, rather than being measured as a unidimensional construct. Based on these findings, researchers and clinicians choosing a self-report measure of impulsivity should take care to ensure that the measure does assess multiple components of impulsivity, rather than a single or narrow component.

It is hardly surprising that attempts to inter-correlate self-report measures of impulsivity have resulted in inconsistent findings. Whereas several studies have reported no statistically significant correlations (Gerbing et al., 1987; Luengo, Carrillo-de-la-Peña, & Otero, 1991), others have described positive correlations between measures (Dickman, 1990; O’Boyle & Barratt, 1993, Parker & Bagby, 1997).

Of the most widely used self-report measures of impulsivity, the oldest is that devised by Barratt (1959), who was interested in the relationship between anxiety and impulsiveness. In this conceptualisation, impulsiveness is defined as a first order personality trait, closely linked to Eysenck’s extraversion, sensation seeking and hypomania (Barratt & Patton, 1983). Barratt’s original impulsivity measure was constructed to measure impulsivity as a unidimensional personality trait, but was later amended to incorporate six then three dimensions, the first multi-
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