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## I can't get no satisfaction: Potential causes of boredom



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### ABSTRACT

A variety of causes of boredom have been proposed including environmental, motivational, emotional, and cognitive factors. Here, we explore four potential cognitive causes of boredom: inattention, hyperactivity, impulsivity, and executive dysfunction. Specifically, we examine the unique and common associations between these factors and boredom propensity. Recent research has established that the two most commonly used measures of boredom propensity (BPS and BSS) are not measuring the same underlying construct. Thus, a second goal of the present project is to determine the unique and common roles of inattention, hyperactivity, impulsivity and poor executive system functioning in predicting the BPS and BSS specifically. The findings reveal that inattention, hyperactivity and executive dysfunction predict boredom propensity, with shared variance accounting for the greater part of this effect. Further, executive dysfunction and hyperactivity uniquely predict boredom propensity as measured by the BPS and BSS, respectively.

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### 1. Introduction

Boredom – the unfulfilled desire for satisfying activity – is a common complaint, yet the ill effects of boredom on human performance and health are often underestimated. Research is now beginning to establish a link between boredom and a host of psychosocial problems (Mercer-Lynn, Hunter, & Eastwood, 2013b). For example, boredom among those working for long periods has been connected with reduced output and increased errors (Wyatt, 1929; Thackray, Bailey, & Touchstone, 1977; O'Hanlon, 1981). Drory (1982) found that boredom among truck drivers was significantly associated with incidence of property damage while driving, while others (Kass, Beede, & Vodanovich, 2010; Harvey, Heslop, & Thorpe, 2011) have correlated boredom propensity with the occurrence of moving violations and accidents. Boredom has been connected with work absenteeism and poor job satisfaction (Kass, Vodanovich, & Callender, 2001), and with reporting of a variety of psychological and somatic symptoms (Sommers & Vodanovich, 2000). Epidemiological research has even connected boredom with mortality, as a predictor sharing variance with employment grade, physical inactivity, and poor health (Britton & Shipley, 2010).

A variety of different psychological causes of boredom have been proposed including emotional, motivational and cognitive factors (Eastwood, Frischen, Fenske, & Smilek, 2012). Emotional factors that contribute to boredom include alexithymia, a factor that hypothetically makes it difficult for boredom-prone individuals to “articulate a satisfying target for engagement” (Eastwood et al., 2012, p. 483). This factor underlies many existential and psychoanalytic theories of boredom, such as those of Greenson (1951, 1953) and Bargdill (2000), and suggests that boredom-prone individuals have either repressed or given up on determining what they want to do and therefore fail to engage with the environment. In support of this view, emotional unawareness (Eastwood, Cavaliere, Fahlman, & Eastwood, 2007), lack of life meaning (Fahlman et al., 2009), and

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the state of having compromised one's personal goals (Bargdill, 2000), have been found to correlate with boredom propensity.

Motivational factors that contribute to boredom include sensitivity to punishment and reward (see Eastwood et al., 2012). Namely, some individuals may be more inclined to experience boredom in the absence of adequate external stimulation, whereas others may often experience boredom because they disengage from over-stimulating, aversive environments according to their tolerance for aversive stimulation. Evidence for these claims comes from observations that both sensitivity to reward and sensitivity to punishment are positively correlated with boredom propensity (Mercer & Eastwood, 2010; Mercer-Lynn, Flora, Fahlman, & Eastwood, 2013a).

Research on cognitive factors that contribute to boredom has, to date, been relatively nonspecific, in that it has implicated chronic weaknesses in attentional networks very broadly defined (see Eastwood et al., 2012 for a recent review). Moreover, researchers have found evidence for increased boredom among those with clinically significant levels of cognitive impairment associated with ADHD, brain injury and severe psychopathology (e.g. Addington & Duchak, 1997; Braff, 1993; Diamond, 2005; Todman, 2003; Zentall, 1985). In the present manuscript, we explore four – possibly distinct – cognitive causes of boredom; namely, inattention, hyperactivity, impulsivity, and poor executive system functioning<sup>1</sup>, in order to more specifically isolate which of these factors are most associated with boredom propensity.

### 1.1. Distinct or overlapping factors?

The degree to which inattention, hyperactivity, impulsivity and executive system functioning are measurable as distinct or overlapping factors is somewhat contentious. For example, many studies have been undertaken to evaluate the factor structure underlying inattention, hyperactivity, and impulsivity in the context of individuals who have a DSM-IV-TR (APA, 2000) diagnosis of ADHD. This population provides an ideal test case for the distinctness of these factors, given that they are frequently present simultaneously within individuals with this diagnosis. Literature in this field has demonstrated dissociation among these factors, although the structure of the relationships among them has been inconsistent. Some studies support a two-factor model, in which hyperactivity and impulsivity combine to form one factor and inattention constitutes a second, separate factor (DuPaul, 1991; DuPaul et al., 2001; Smith & Johnson, 1998; Collett, Crowley, Gimpel, & Greenson, 2000; Hart, Lahey, Loeber, Applegate, & Frick, 1995; Lahey, Pelham, Schaughency, & Atkins, 1988; Rasmussen et al., 2002; Rhode et al., 2001; Gomez et al., 2003; Sherman, Iacono, & McGue, 1997), while others support a three-factor model, in which inattention, hyperactivity and impulsivity each form unique factors (Gioia, Isquith, Retzlaff, & Espy, 2002; Glutting, Youngstrom, & Watkins, 2005; Gomez, Harvey, Quick, Scharer, & Harris, 1999; Pillow, Pelham, Hoza, Molina, & Stultz, 1998; Proctor & Pervatt, 2009; Conners, Erhardt, & Sparrow, 1999). Recent studies of hierarchical models suggest that the dimensions of inattention and hyperactivity/impulsivity are best fit along with a higher-order factor that contributes variability to both of these factors (Hudziak et al., 1998; Toplak et al., 2009; Konold & Glutting, 2008; Dumenci, McConaughy, & Achenbach, 2004). Such findings are not limited to studies within the ADHD population, but have been replicated in individuals without ADHD (Normand, Flora, Toplak, & Tannock, 2012; Span, Earleywine, & Strybel, 2002; Toplak et al., 2012), supporting the separability of these dimensions in the general population as well. No study has found support for a unidimensional model, suggesting that inattention, hyperactivity, and impulsivity are separable dimensions but are likely highly interrelated.

In terms of ratings of executive system functioning, Kessler et al. (2010) found better discriminant power for an executive functioning ratings variable than for hyperactivity, impulsivity or inattention in distinguishing those with adult ADHD from healthy controls, suggesting that executive functions as rated via self-report are not reducible to the other three factors. These authors found support for a three-factor model for adult ADHD symptoms, including executive dysfunction ratings, inattention/hyperactivity, and impulsivity dimensions. Gioia et al. (2002) found that parent-reported cognitive difficulty among children was also best modeled by a three-factor solution, in which task engagement difficulties stemmed either from impulsivity, hyperactivity or “executive problems” – a category including parent-rated task monitoring, planning, organization, executive working memory and action initiation (which together formed a single factor).

In sum, findings support the notion that inattention, hyperactivity, impulsivity and executive dysfunction are separable based on factor analytic studies, including community and ADHD samples. However, hierarchical factor analytic models suggest that at least some of these cognitive mechanisms may share contributions from common sources of variability; this conclusion would explain previous inconsistencies in the factor structures evidenced across studies.

Given the debate and lack of clarity regarding the distinctiveness of inattention, hyperactivity, impulsivity and executive functioning, the present study simultaneously examined the unique *and* common associations between these cognitive processes and the trait of boredom propensity. All of these cognitive factors are characterized as impediments in task engagement and, as described in the following sections, research has shown that all of these cognitive processes are associated with boredom propensity. However, no study has yet simultaneously explored all of these constructs in a way that permits the examination of their relative contributions to boredom propensity while also permitting interrelationships between these factors to be assessed. The following sections review evidence for a role of each factor in boredom propensity and provide the rationale for examining each in the current study.

<sup>1</sup> The term ‘cognitive’ is used here in contradistinction to the other broad classes of psychological causes articulated in the literature. However, ‘impulsivity and ‘hyperactivity’ are arguably not purely ‘cognitive’ processes; thus we are employing the term ‘cognitive’ somewhat loosely.

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