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## The Misnomer of Impulsivity: Commentary on “Choice Impulsivity” and “Rapid-Response Impulsivity” Articles by Hamilton and Colleagues

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The pair of articles presented by the International Society for Research on Impulsivity address the definition of, recommendations for, and future directions for research on two constructs related to impulsivity: Choice impulsivity (CI) and Rapid Response Impulsivity (RRI). As has been well-documented elsewhere, the construct of impulsivity encompasses multiple different dispositions to rash action, including, but not limited to, acting without thinking, seeking out new or thrilling sensations, excitability, behavioral activation, motor impulsivity, cognitive impulsivity, and distractibility (e.g., Depue & Collins, 1999; Whiteside & Lynam, 2001). Measurements of these numerous constructs have included many different self-report questionnaires and behavioral laboratory tasks (for two previous reviews, see Cyders & Coskunpinar, 2011, Dick et al., 2010).

Impulsivity is the most frequently included criterion in the Diagnostic and Statistical Manual (DSM-5; APA, 2013) and is thought of as a prime transdiagnostic endophenotype of risk for a wide range of clinical disorders (see Cyders, Coskunpinar, & VanderVeen, in press, Verdejo-Garcia, Lawrence, & Clark, 2008). However, many of these “impulsive” constructs describe different behavioral tendencies. These separate impulsivity-related constructs have varying levels of clinical utility in predicting clinical outcomes (see Smith et al., 2007). As described by Smith, Fischer, and Fister (2003), aggregating across measures assessing different aspects of impulsive behavior (as would be the case if measures of CI were combined with measures of RRI) would result in a lack of construct homogeneity (see Strauss & Smith, 2009), which could (1) lead to vague conclusions about the active components of the construct’s predictive value (i.e., what is actually explaining the effect on the clinical outcome), (2) obscure existing relationships with outcomes of interest, and (3) lead to inconsistencies across studies and a stalemate in the accumulation of scientific knowledge. A review of the research literature on impulsivity certainly suggests that these three outcomes are occurring and slowing the progress of science.

Therefore, the attempt to define clear, unidimensional constructs related to impulsive action is an important one undertaken by these authors. Much of the work in disaggregating the trait of impulsivity has occurred with self-report measures; however, self-report assessments are limited by many biases and are less translationally applicable. The pursuit of defining

clear behavioral impulsivity constructs will lead to more reliable research findings, a better understanding of translational approaches, and cumulative progress in science. If CI is related to an outcome, but RRI is not, for instance, combining these two measures into one construct would obscure meaningful relationships. In this case, we are truly combining apples and oranges – true, they are both fruit, but they sure taste different.

A previous attempt to disaggregate behavioral impulsivity tasks has been undertaken (Dick et al., 2010), which proposed five different types of cognitive processes thought to represent the construct of impulsivity: (1) being able to suppress dominant or automatic responses (prepotent response inhibition; most similar to RRI proposed by the current pair of articles), (2) the ability to avoid interference from task-irrelevant information (resistance to distractor interference), (3) the ability to resist memory intrusions of no longer relevant information (resistance to proactive interference), (4) the ability to delay responding in the face of a larger reward (delay response; most similar to CI proposed by the current pair of articles), and (5) the ability to accurately judge time passages (distortions in judging elapsed time). Clearly the Dick and colleagues (2010) disaggregation includes more facets of behavioral impulsivity than the current authors include; research is needed to validate the groupings of these constructs, determine the appropriate or best-fitting number of groupings, and determine the differential clinical utility of these groupings.

However, what is clear from previous work is that correspondence among these separate “impulsivity” constructs is weak at best. In fact, separate constructs share very little variance and overlap, suggesting that the term “impulsivity” is a misnomer and that these separate tendencies are assessing separate, though related, constructs (Cyders & Coskunpinar, 2011; Smith et al., 2007). Even the current authors suggest that CI and RRI are weakly related; the persistence in referring to these separate constructs as “impulsivity” is problematic, as this suggests a relationship that is likely not there and does not offer the precision to clearly describe the specific tendency that is being assessed. In self-report conceptualizations, we have found that there is no overarching “impulsivity” trait that explains interrelations among the traits (Cyders & Smith, 2007); it is better to think of them as separate and distinct tendencies. This is likely also true for behavioral conceptualizations of impulsive action. Until we stop using the term “impulsivity” to refer to a multitude of different tendencies, all of which have different magnitudes of relationships with clinical outcomes and are not highly related to each other, we will continue to muddy the water, mask existing effects, misunderstand existing research, and fail to move forward past the question of *Is impulsivity related to psychopathology and how?* After so many years of impulsivity research, we could be farther, and this increased specificity in our operationalizations and measurement will help.

The current articles make clear suggestions on how to use measures of CI and RRI in research settings, which will help to standardize procedures and advance the field. Given the lack of overlap between these constructs and impulsivity-related traits (see Cyders & Coskunpinar, 2011), I recommend that researchers interested in human impulsivity include a trait measure of impulsive tendencies in research methods. Many of these measures are not burdensome on participants and can offer a richer picture of general tendencies toward impulsive behavior that occurs outside of the laboratory. It is important that such measures

assess separate unidimensional aspects of trait impulsivity, such as the one my colleagues and I have developed (The UPPS-P Impulsive Behavior Scale; Lynam et al., 2006), although others exist as well (e.g., The Barratt Impulsiveness Scale; Patton, Stanford, & Barratt, 1995).

One remaining question is if impulsive tendencies are implicated in such a wide range of clinical disorders, what is the role of these tendencies in the etiology of these disorders or their treatment? Are CI and RRI (as well as other constructs) mere symptoms of the disorders or do they represent fundamental dysfunction in neurobiology that underlie the disorders? Modifying these tendencies is often a focus of therapy. Take, for example, an individual who has lost custody of his or her children due to drug abuse. Therapy could focus on resisting a smaller, immediate reward (drug high) in exchange for a larger, delayed reward (regaining custody of his/her children). Does modifying this CI tendency generalize to other domains? Does this help to treat the disorder or just the symptoms? The clinical and research communities require a better understanding of how treating or modifying impulsivity can affect clinical disorders and their underlying biological mechanisms.

In conclusion, only by separating and clearly defining unidimensional impulsivity-related constructs can we better understand the role of these tendencies in clinical disorders. This pair of articles offers clear guidance to standardize the measurement and use of CI and RRI in future research studies that will help to advance the cumulative nature of our research findings. Continued work to determine the content domain of these tendencies (e.g., is two enough?), the relationship of these tendencies with other impulsivity-related constructs, and the effect of modifying these tendencies on subsequent clinical symptomatology will lead to clinical science gains and improvement in identification, prevention, and intervention strategies.

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