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Research paper

A Metacognitive model of procrastination☆

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ABSTRACT

Background: procrastination refers to the delay or postponement of task or decision-making initiation or completion and is often conceptualised as a failure of self-regulation. Recent research has suggested that metacognitions play a role in procrastination and that unintentional procrastination (UP), as opposed to intentional procrastination (IP), may be the most problematic form of this behaviour. We aimed to test a metacognitive model of procrastination that was grounded in the Self-Regulatory Executive Function model.
Methods: a convenience sample of 400 participants were recruited and completed (at least partially) a battery of online questionnaires that measured IP and UP, metacognitions about procrastination, depression, and Cognitive Attentional Syndrome (CAS) configurations. Initially, we tested series of hypotheses to establish the relationships between the experimental variables and to test whether CAS configurations would independently predict UP when controlling for age, depression, IP, metacognitions about procrastination, and whether an individual reported that they had been diagnosed with a psychiatric disorder.
Results: CAS configurations, depression, and metacognitions independently predicted UP. Additionally, path analysis revealed that the study data was an excellent fit to the proposed metacognitive model of procrastination.
Limitations: the study is cross-sectional.
Conclusions: the metacognitive model of procrastination presented in this paper can be used to generate novel interventions to treat this problematic behaviour.

1. Introduction

1.1. Procrastination

Most of us can recall a time in our lives when we have procrastinated, perhaps because it is a nuanced concept that appears to be understood differently by different individuals. Broadly speaking, the term 'procrastination' seems to be commonly used to refer to an episode when an individual is 'putting off' or failing to complete an activity (such as doing homework or filing a tax return) in any given moment. Procrastination is a common behaviour, with the prevalence rates reported as high as 70% in students (Ellis and Knaus, 1977) and 20% in an adult sample (Harriott and Ferrari, 1996). Perhaps unsurprisingly, it has been found to be associated with diminished academic and work performance, as well as poor mental health (Stöber and Joormann, 2001).

Some psychologists have conceptualised procrastination as a failure of self-regulation (Baumeister and Heatherton, 1996; Baumeister et al., 1994) – in other words, it has been viewed as a maladaptive attempt to manage behaviour or emotion. Some individuals may believe that by postponing a task they will perform better (and successfully) at a later date, however it is unlikely that this strategy consistently results in a successful outcome (e.g., students submit assignments late, people fail to file their tax returns on time, etc.). For this study, we define

☆ Compliance with Ethical Standards. All authors declare that they have no conflicts of interest. This study involved human participants. All procedures performed in this study were conducted in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

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procrastination as the postponement or avoidance of starting, engaging in, and/or completing a task or a decision-making process, whether intentional or unintentional (Fernie et al., 2015).

1.2. Conceptualizations and models of procrastination

Several different conceptualizations and models of procrastination have been proposed in the extant psychological literature. For example, behaviourists have utilised operant conditioning to understand procrastination. This approach recruits avoidance behaviour in the role of a maintaining factor for procrastination (Ferrari and Emmons, 1995). Procrastination is reinforced because exposure to aversive stimuli (e.g., writing challenging essays, cleaning filthy toilets, etc.) is avoided. This perspective has been criticized for failing to account for individual differences amongst procrastinators (Ferrari et al., 1995). From a more cognitive perspective, much like Baumeister et al. (1994), Tuckman and Sexton (1989) also conceptualised procrastination as a failure to self-regulate. In a similar manner, Ellis and Knaus (1977) also postulated that procrastination was an illogical and non-goal directed behaviour but emphasized the key role of irrational cognitions. Central to this Rationale-Emotive Therapy perspective are the presence of two irrational beliefs: firstly, procrastinators doubt their ability to complete a task and, secondly, they fear the possible negative social consequences of failing to complete a task well. Further studies suggested that particular cognitive constructs are implicated in procrastination. For example, the perceived difficulty of a particular task (i.e., its level of 'task aversiveness') has been shown to be associated with procrastination (Solomon and Rothblum, 1984), as well as self-efficacy beliefs (Haycock et al., 1998), self-esteem (Ferrari, 1994), and perfectionism (Stöber and Joormann, 2001).

Later still, Steel and König (2006) presented a model of procrastination they called Temporal Motivation Theory (TMT) in an attempt to synthesize several strands of research. TMT can be represented by an equation that aims to calculate the perceived utility ascribed to the initiation of, engagement with, and/or the completion of, a task, arguing that this is a function of the likelihood that an individual will procrastinate in a given situation. In calculating perceived utility, TMT employs several variables, specifically: valence (i.e., the 'amount' of attraction or aversion an individual feels towards the task – its level of task aversiveness), expectancy (i.e., a measure of how likely an individual believes that a given task will yield utility), delay (i.e., the length of time before the individual will experience the expected outcome), and gratification (i.e., an individual's intolerance of the delay). Arguably all of these variables tap in to several cognitive constructs that have been implicated in procrastination, namely task aversion, self-efficacy, self-esteem, and perfectionism. However, TMT (alongside other traditional CBT conceptualizations of procrastination that tend to emphasize the role of the content of cognitions) appears to neglect the possible key role of cognitive processes and attentional strategies in this behaviour.

1.3. Metacognitions, the self-regulatory executive function model, and procrastination

The concept of metacognitions refers to a higher-order thinking that embodies beliefs concerning cognitive processes, attentional strategies, behaviours, and physical sensations. Metacognitions play a central role in the Self-Regulatory Executive Function (S-REF: Wells and Matthews, 1996, 2014) model of psychiatric disorders. The S-REF model describes a cognitive architecture, consisting of three interacting levels that are delineated into an automatic, low-level (or bottom-up) component, an online stage that reflects conscious cognitive processes and attentional strategies, and a higher-level that represents long-term memory and is where, according to the model, metacognitive beliefs (or metacognitions) are stored. In clinical practice, when working from a Metacognitive Therapy (MCT: Wells, 2011) perspective that was built from the S-REF model, psychiatric disorders and emotional distress are formulated using the Cognitive Attentional Syndrome (CAS) as a framework. The CAS consists of cognitive processes (such as distraction, rumination, and worry), maladaptive behaviours (e.g., avoidance), and attentional strategies (for example, self-focussed attention) that are governed by metacognitive beliefs (e.g., "My rumination is uncontrollable" and "My worry keeps me safe"). According to MCT, psychiatric disorder and emotional distress are the consequences of particular CAS configurations that result in 'perseveration': i.e., sustained engagement in unhelpful processes, which themselves represent self-regulation strategies that fail to modify maladaptive self-knowledge and behaviour. Problematic CAS configurations can be characterized by a particular relationship that individuals have with their thoughts, such that they are treated as facts that represent an objective reality (in the terms of the S-REF model, this is labelled 'object-mode') rather than mere transient mental events that are separate from the self and the world (termed 'metacognitive-mode'); in this mode, thoughts are a form of potentially inaccurate representations that provide but a shadowy impression of reality (Wells, 2011).

1.4. Intentional and unintentional procrastination

More recently, procrastination has been delineated into intentional and unintentional domains (Fernie et al., 2016). Intentional procrastination (IP) refers to the deliberate and conscious engagement in this behaviour, while unintentional procrastination (UP) pertains to situations where it is perceived as involuntary. UP, but not IP, has been shown to be associated with low mood and anxiety (Fernie et al., 2016). The construct of IP aligns itself with the development of a self-report measure called the Active Procrastination Scale (APS; Choi and Moran, 2009) and, of particular relevance to this study, a sub-factor within the APS named 'Intentional Decision to Procrastinate'. A brief self-report measure of UP has also recently been developed and validated, namely the Unintentional Procrastination Scale (UPS: Fernie et al., 2016).

Chu and Choi (2005) proposed that there are two types of procrastinator: passive and active. They characterized a passive procrastinator in a manner that alludes to more 'traditional' conceptualizations of this behaviour. Passive procrastinators typically leave tasks to the last minute despite their good intentions, attenuating performance. Active procrastinators choose to delay task initiation or completion, believing that this strategy may actually optimize performance. This delineation between active and passive procrastinators is similar to the distinction between IP and UP. However, in this paper, we test a model of procrastination in which problematic procrastinators engage in both IP and UP due to the presence of metacognitions that activate maladaptive cognitive processes, such as distraction, rumination, and worry.

We argue and test in this paper the hypothesis that cognitive or 'ego' depletion (Baumeister et al., 2000; Muraven and Baumeister, 2000) is key to understanding UP. We propose that when engaging in IP, a problematic procrastinator initiates a particular CAS configuration, consisting of distraction, rumination, and worry, in a futile attempt to regulate their behaviour. As a result, UP becomes unavoidable and perseverative because these cognitive processes and attentional strategies consume significant mental resources and are inefficient means to achieve specific goals or complete required activities. Consequently, the problematic procrastinator has insufficient mental resources to allocate to task initiation and/or completion, in other words they begin UP. Furthermore, engagement in rumination and worry have been shown to result in negative affect (Berenbaum et al., 2012; Nolen-Hoeksema, 1991; Papageorgiou and Wells, 2009), a consequence of which may be a lethargy that may further contribute to attenuated performance. The use of distraction is also likely to be unhelpful. This attentional strategy would result in the misallocation of the remnants of mental resources away from task initiation and/or completion, deleteriously affecting performance.