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Self-control in health and well-being

Concepts, theories, and central issues

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Self-control – the ability to regulate current thoughts, feelings, and behavior to secure future benefits (Bandura, 1989; Carver & Scheier, 1981, 1982; Metcalfe & Mischel, 1999; Rothbaum et al., 1982; Vohs & Baumeister, 2004) – is one of the most widely and intensely studied topics in psychology. Related terms include delay of gratification and willpower, which capture the essence of self-control as entailing the forgoing of smaller immediate rewards (such as enjoying a bag of potato chips) in favor of larger yet delayed rewards (such as being slim, fit, and healthy). The concerted research effort focused on self-control is largely inspired by the fact that it is associated with a host of positive outcomes. Whether self-control is conceptualized as a trait or a state, empirical research shows that people with high relative to low self-control are better able to control their thoughts, regulate their emotions, and engage in goal-directed behavior. Self-control is implicated in nearly all forms of behavior conducive to a successful and happy life, including those in the academic, health, and interpersonal domains (De Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012; Tangney, Baumeister, & Boone, 2004). Conversely, low self-control is assumed to be at the heart of many societal problems, including obesity, substance abuse, criminality, impulsive buying, and procrastination (Baumeister & Heatherton, 1996; Gottfredson & Hirschi, 1990; Steel, 2007; Vohs & Faber, 2007). Findings such as these have spurred researchers to examine not only the antecedents and consequences of successful self-control, but also the underlying mechanisms that facilitate or impair self-control decision-making.

Self-control in the context of health and well-being

Health and well-being represent two of the most important and commonly studied domains of self-control. Many health and well-being behaviors constitute prototypical self-control dilemmas that require choosing between a smaller yet immediately available reward (e.g., watching a favorite TV show, eating cake, or expressing your frustration) vs. a more valuable yet delayed reward (e.g., staying healthy and well adjusted by exercising, eating healthily, or maintaining good relationships, respectively). Beyond providing prototypical test cases for examining self-control processes, health and well-being are also a particularly relevant and important domain for conducting basic research to address larger personal and societal issues. Many of the most prevalent and pressing physical and psychological problems people face may be prevented by

changing behavior. It has been estimated, for example, that 50% of the mortality from the leading causes of death could be reduced if people ate a healthy diet, maintained a reasonable weight, exercised regularly, and refrained from smoking cigarettes (Knoops et al., 2004). In addition, a host of other behaviors would help people achieve or maintain optimal health, including performing exercises to stay fit, controlling one's hostility, and reducing stress through meditation or other means (Tangney et al., 2004).

Health professionals, the media, friends, and family members alike routinely exhort individuals to make changes to their health behaviors; these same individuals themselves are often eager to do so. But as anyone who has ever tried to change these behaviors knows, these prescriptions are easy to recommend but very difficult to achieve and maintain. In short, although many people know about the importance of changing their behavior to promote health and well-being goals, they frequently fail to engage in these behaviors when confronted with temptations that undermine these goals.

Consider, for example, Tina – a young woman who is slightly overweight and has adopted the goal of losing weight to fit in her favorite summer dress again. Although she is committed to refraining from eating unhealthy snacks in between meals, she cannot overcome the temptation to eat a donut that is offered by a friend. Or consider Bill – an executive manager who spends long days at the office. At the end of the day, he often feels exhausted and struggles to control his temper with his children at home. One day Bill decides that he needs to be a better father and not take his work stress out on his children, only to forget about his good intentions the next evening when he arrives home after a tiresome meeting. What these examples highlight is the all-too-common fact that the best of intentions to advance one's health and well-being goals often wilt in the face of everyday temptations and frustrations.

As one might anticipate, research has demonstrated that the ability to combat these immediate urges and temptations plays a critical role in promoting and sustaining behaviors that are beneficial for physical and mental health, including healthy eating (Wills, Isasi, Mendoza, & Ainette, 2007), dieting (Kuijer, De Ridder, Ouwehand, Houx, & Van den Bos, 2008), exercise (Wills et al., 2007), and greater accommodation in close relationships (Finkel & Campbell, 2001). High self-control has also been associated with happiness (Cheung, Gillebaart, Kroese, & De Ridder, 2014) and other indicators of well-being, including life satisfaction (Hofmann, Luhmann, Fisher, Vohs, & Baumeister, 2014) and self-esteem (Tangney et al., 2004). People with high self-control also report less depression and anxiety (Bowlin & Baer, 2012), lower incidence of eating disorders (Tangney et al., 2004), less obesity (Tsukayama, Toomey, Faith, & Duckworth, 2010), less physical and verbal aggression (Tangney et al., 2004), reduced use of alcohol, tobacco, and marijuana (Wills, Walker, Mendoza, & Ainette, 2006), less frequent engagement in unsafe sexual behavior (Gailliot & Baumeister, 2007), and more effective inhibition of negative emotional responses (Kieras, Tobin, Graziano, & Rothbart, 2005). Indeed, some work suggests that one's self-control abilities can predict health and well-being outcomes up to 30 years later (Moffitt et al., 2011; Schlam, Wilson, Shoda, Mischel, & Ayduk, 2013). These findings not only highlight health and well-being as paradigmatic self-control examples, but also illustrate the power of self-control in various personal and social outcomes.

Although much has been done to document the central role of self-control in health and well-being, many questions remain. For example, it is unclear to what extent all behaviors relating to health and well-being are amenable to change via self-control. In the domain of food, although self-control is often cited as an integral component of regulating eating behavior, the effects of self-control on eating have been shown to be considerably more modest as compared to other factors such as adjustment and achievement (De Ridder et al., 2012). This suggests that self-control may play greater or lesser roles in different behaviors.

One reason for this variance may be that the success of self-control may depend on a variety of cultural, social, and biological factors. This may be particularly true in the context of health and well-being. Consider eating behavior again. Although many people may recognize that the importance of self-control in regulating their diet – telling themselves "they should be strong" and "just say no" to foods they would like to consume – they may overlook the abundant presence of attractive but unhealthy foods in their obesogenic environment. As a result, they may underestimate the potential of their food-filled environments to influence their eating behavior and undermine their dieting goals (Nordgren, Van Harreveld, & Van der Pligt, 2009). Thus, the potential impact of self-control exertion on eating behavior may be blunted by the ubiquitous presence of food temptations. In addition to these cultural factors, social and biological factors may also play a role. For example, the success of any self-control effects may be more modest among those who are particularly sensitive to the rewarding value of foods, or when it is considered "normal" to consume large amounts of junk food (De Ridder, De Vet, Stok, Adriaanse, & De Wit, 2013). Similar dynamics may also influence the role of self-control in other health and well-being behaviors that are challenged by cultural, social, or biological factors, such as getting sufficient sleep in the 24-hour television and internet media environment, stress management when one has a demanding job and low frustration tolerance, or controlling aggressive impulses when one is involved in a problematic relationship. Understanding how the effects of self-control on behavior are moderated by cultural, social, and biological factors represents critical questions that are particularly well suited for empirical investigation in the health and well-being domains. Health and well-being thus provide a unique "test-bed" with which to examine the operation of self-control processes in various behaviors as a function of the specific context in which these behaviors occur.

In the present handbook, we summarize recent developments in research on self-control in health and well-being to provide a state-of-the-art, comprehensive overview of current theories, processes, and applications. Crucially, in addition to discussing central theories and crucial processes, this handbook also aims to provide a detailed account of self-control in specific health and well-being domains, including exercise, safe sexual behavior, maintaining interpersonal relationships, and emotion regulation. Moreover, a final section of this handbook is devoted to discussing innovative and exciting new approaches to improving self-control. The handbook comprises contemporary accounts of classic topics in self-control research, such as the role of impulsivity and inhibition in self-control. It also introduces a number of new topics that are especially relevant for health and well-being research and practice, including chapters on effortless self-control, mindful self-control, and using environmental influences to "nudge" people to exert more self-control.

The need to inform the wider health and well-being community of the current state-of-the-field of self-control research is even more critical given the dramatic advances that have been made in the past decade. For example, although the ability to inhibit impulses in the face of temptation has traditionally been recognized as central to self-control, research suggests that this process is fallible and easily disruptible. Emerging research suggests that people can employ a battery of alternative mechanisms to enhance self-control that do not require this inhibition of impulses. This may suggest new directions in self-control improvement. Similarly, past research suggests that self-control may be limited, such that the exertion of self-control in one task depletes one's ability to exert self-control in another (e.g., Muraven & Baumeister, 2000). This work has had a profound influence on the study and practice of health and well-being behavior, providing a deeper understanding of why so many people fail in their efforts to change their health and well-being behaviors. More recent research has provided important new insights and has suggested adjustments to this limited strength model – highlighting motivational and

attentional processes that contribute to successful and unsuccessful exertion of self-control. The present handbook provides a comprehensive review of these and other pressing issues that may inform self-control research and practice in health and well-being.

Handbook overview

This handbook consists of six main sections, covering the following themes: conceptualizing self-control, assessing self-control, antecedents and consequences of self-control, applications to health, applications to well-being, and improving self-control. Each of these six sections includes chapters that have been prepared by leading researchers from around the world.

Conceptualizing self-control

The first part of this handbook discusses the broad range of theoretical models researchers have proposed to describe self-control. These include chapters on the limited strength model of self-control and its alternatives (Milyavskaya & Inzlicht), proactive and reactive processes in self-control (Sklar, Rim, & Fujita), effortless self-control processes (Gillebaart & De Ridder), and self-control as the regulation of cue-based responses (Wagner). Together, these chapters provide a state-of-the-art overview of the most prominent theoretical and conceptual approaches to understanding self-control.

Assessing self-control

The second section of this handbook addresses the important topic of how self-control can be assessed, and provides an overview of the most widely used approaches. These include behavioral tasks to assess self-control as a limited resource (Hagger & Chatzisarantis), self-report trait and state measures (Hoyle & Davisson), intertemporal choice (Urminsky & Zauberman), ecological momentary assessment (Dohle & Hofmann), and neurobiological techniques that are used to measure self-control (Berkman). Some of these approaches, such as momentary ecological assessment and functional magnetic resonance imaging (fMRI), represent dramatic new advancements in the study of self-control, allowing researchers to explore questions from brain to real-world behavior.

Antecedents and consequences of self-control

Beyond documenting the beneficial and detrimental effects of high and low self-control on a variety of outcomes, respectively, there is a growing interest in the when and why of self-control. That is, researchers have increasingly focused on investigating the antecedent psychological factors that promote successful vs. unsuccessful self-control, and the mechanisms by which these factors influence behavior. The third section includes chapters on the roles that motivation (Molden, Hui, & Scholer), lay beliefs (Bernecker & Job), and cognitive capabilities (Hofmann) play in determining who is successful, when they are likely to be successful, and why. Chapters in this section also examine the strategies that people employ to defend their goals against temptations (Fishbach & Woolley), or how cognitive interpretations or construals of situations may facilitate or hinder self-control (Kalkstein, Fujita, & Trope). Chapters in this section also explore the role of perceived agency in self-control (Renes & Aarts), justification processes in response to or preceding self-control failure (Adriaanse & Prinsen), and the costs of overly successful self-control (Kivetz, Meng, & He).

Self-control applications to health

The fourth part of this handbook addresses how self-control research provides insight into specific physical health domains. Six chapters are devoted to research on the role of self-control in behaviors that have a large impact on health but in which people frequently fail to engage. Several types of health behaviors are discussed, including behaviors that are influenced by visceral factors, such as eating (Mann & Panos), sleep (Nauts & Kroese), and sexual behavior (De Wit, Den Daas, & Adam); behaviors that require the initiation of a desired behavior (rather than the inhibition of an impulse), such as exercise (De Vet & Verkooijen); as well as behaviors that may entail addiction, such as alcohol consumption (Osgood & Muraven) and smoking (Dijkstra).

Self-control applications to well-being

Although self-control research has focused in large part on behaviors related to physical health, there is also a longstanding tradition of examining the role of self-control in important aspects of well-being, such as adjustment and social behavior. The fifth section of the handbook covers topics that are relevant to well-being – emotion regulation (Evers) and self-esteem (Denissen, Thomaes, & Bushman) – and examines related issues such as the role of self-control in family relationships (Finkenauer, Buyukcan-Tetik, Schoemaker, Willems, Bartels, & Baumeister), racial disparities (Levi & Richeson), social relationships (VanDellen, Beam, & Fitzsimons), and consumer behavior (Haws). Chapters in this section also explore the clinical relevance of self-control among those with psychopathological symptoms (Ayduk & Kross).

Improving self-control

Given its crucial role in health and well-being, it is important to address to what extent self-control can be improved by psychological interventions. Recent years have seen the development of a number of novel approaches to improve self-control. The chapters in the final section of this handbook discuss these advancements. This work details the situational and personal factors that play a critical role in actual self-control performance, and that may influence behavior over longer periods of time. Research seeks to improve self-control by taking advantage of these factors. This section of the handbook will describe the main approaches researchers have taken to improve self-control. It includes chapters on automating self-control by implementation intentions (Oettingen & Gollwitzer), strengthening self-control exercises (Beames, Schofield, & Denson), and promoting more mindful self-control (Friese, Ostafin, & Loschelder). Other chapters examine supporting self-control by exposure to temptations (Dewitte), attentional training (Wiers & Larsen), and environmental rearrangements or "nudges" (Marchiori & Stok). Finally, chapters in this section also examine how states of low self-control can be used to the benefit of health and well-being (Fennis) and how self-affirmation may make people more willing to consider behavior change (Van Koningsbruggen, Miles, & Harris).

By providing a broad overview of research on self-control and its applicability to health and well-being, we hope not only to inspire scientists and practitioners to incorporate these newly emerging ideas into their own work, but also to encourage basic scientists to explore these important and critical domains. Given its centrality in health and well-being – issues that most people consider important in their lives – researchers and practitioners alike need a more thorough understanding of the who, when, and why of self-control.

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