Self-Control in Context: A Mixed Methods Investigation of Self-Control and Self-Control Failure

by

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ABSTRACT

SELF-CONTROL IN CONTEXT: A MIXED METHODS INVESTIGATION
OF SELF-CONTROL AND SELF-CONTROL FAILURE

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In this thesis, I take a mixed methods approach to exploring motivations and explanations for self-control and self-control failure. In Study 1, I used quantitative, experimental methods to test predictions derived from the strength model of self-control and self-determination theory related to voluntary risk, vitality, and self-control. In Study 2, I used thematic analysis of qualitative interviews to describe how people experience self-control and self-control failure. The strength model describes self-control as a limited resource that is depleted by acts requiring executive control. When people’s self-control is depleted, they are motivated to conserve and replenish self-control resources. One way of regaining self-control may be engaging in risky activities that provide a replenishing sense of vitality. Feelings of vitality are associated with perceptions of autonomy, and may serve as an experiential barometer of self-control strength.

In Study 1, I manipulated self-control depletion and risk autonomy to test whether people engage in risky choices to provide a replenishing sense of vitality. My results suggest that vitality is not a reliable barometer of self-control strength. Perceptions of autonomy appear to be a predictor of short-term self-control strength, such that forced risk is a depleting experience. Further, perceptions of autonomy were an important facet of participants’ attributions of self-control success. However, thematic analysis further suggests that experiences of self-control cannot be removed from a context of motivation and emotion. More than just short-term fluctuations in ability to resist temptation, people’s personal theories of self-control provide a long-term narrative for explaining success and failures of goal-directed striving. More than just an intra-individual construct, the social context of self-control appears to have important
influences on people’s attributions for self-control and self-control failure. By combining quantitative and qualitative methods, I add to the self-control literature by providing an account of the mechanisms and experiences of self-control and self-control failure.
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# Table of Contents

List of Tables .............................................................................................................. viii
List of Figures .............................................................................................................. ix
Chapter I: Introduction ................................................................................................. 1
  Overview ..................................................................................................................... 1
Chapter II: Literature Review ....................................................................................... 4
  Defining Self-Control and Self-Regulation ............................................................... 4
  The Strength Model of Self-Control ....................................................................... 5
  Replenishing Self-Control ....................................................................................... 7
  Vitality: An Overview .............................................................................................. 9
  Motivation and Self-Control .................................................................................... 10
  Self-Control, Self-Determination Theory, and Vitality .......................................... 13
  Self-Control and Choice .......................................................................................... 15
  Self-Control and Risky Behaviour: Replenishing Indulgence or Unanticipated Outcome? .......... 21
  Hypotheses ............................................................................................................. 26
Chapter III: Study 1 Methods ..................................................................................... 28
  Study 1 Overview .................................................................................................... 28
  Informed Consent and Demographics ................................................................... 28
  Vitality and Mood .................................................................................................... 28
  Self-Control Strength .............................................................................................. 29
  Self-Control Depletion ............................................................................................ 30
  Degree of Risk ......................................................................................................... 30
  Risk Autonomy ....................................................................................................... 31
  Intrinsic Motivation ................................................................................................. 31
Chapter IV: Study 1 Results ....................................................................................... 33
  Demographics and Preliminary Analyses ............................................................... 33
  Primary Analyses: Testing Planned Hypotheses ..................................................... 36
  Secondary Analyses: Disentangling Vitality, Self-Control, and Mood ......................... 41
Chapter V: Study 1 Discussion ................................................................................... 49
  Limitations and Future Research ........................................................................... 50
  Self-Control in Context: Transition to Study Two .................................................. 51
Chapter VI: Study 2 Methods ..................................................................................... 52
Risk is Revitalizing (Sometimes)........................................................................................................ 154
Forced Risk is Depleting.......................................................................................................................... 154
Motivation and Self-Control: Making Meaning and Justifying Risk .................................................. 155
Vitality and Mood Are Not Barometers of Self-Control ........................................................................ 156
Self-Control Takes Time.......................................................................................................................... 157
Self-Control: State of Mind and State of Motivation ........................................................................... 158
References ............................................................................................................................................... 160
Appendices ............................................................................................................................................ 173
Appendix A: Study 1 Overview.............................................................................................................. 174
Appendix B: Subjective Vitality Scale (SVS) ........................................................................................ 175
Appendix C: Brief Mood Introspection Scale (BMIS) .......................................................................... 176
Appendix D1: Balloon Analogue Risk Task (BART) Instructions ......................................................... 177
Appendix D2: Balloon Analogue Risk Task (BART) ............................................................................. 179
Appendix D3: BART Congratulations Screen ...................................................................................... 180
Appendix E: Intrinsic Mood Inventory (IMI) ......................................................................................... 181
Appendix F: Interview Guide ................................................................................................................. 182
Appendix G: Demographic Questionnaire .............................................................................................. 183
Appendix H: Thematic Map .................................................................................................................... 184
List of Tables

Table 1. Descriptive Statistics for Interest/Enjoyment and Perceived Choice Subscales........... 36
Table 2. Descriptive Statistics for Adjusted Average Number of Balloon Pumps ..................... 37
Table 3. Marginal Mean Final Handgrip Persistence (Log10 Transformed) by Experimental Condition .................................................................................................................................................. 38
Table 4. Does Vitality Mediate Between Degree of Risk and Final Self-Control Strength? ..... 40
Table 5. Intercorrelations Among Measures Self-Control Strength and Vitality .......................... 41
Table 6. Does Vitality Mediate Between Baseline and Final Self-Control Strength? ............... 42
Table 7. Descriptive Statistics for Vitality, Mood, and Arousal, Over Time .............................. 43
Table 8. Intercorrelations Among Measures of Vitality, Intrinsic Motivation, and Autonomy . 44
Table 9. Do Interest/Enjoyment and Perceived Choice Mediate Between Time 2 and Time 3 Vitality? ......................................................................................................................................................... 45
Table 10. Intercorrelations Among Measures of Mood, Intrinsic Motivation, and Autonomy. 46
Table 11. Do Interest/Enjoyment and Perceived Choice Mediate between Time 2 and Time 3 Mood? ....................................................................................................................................................... 46
Table 12. Intercorrelations Among Measures of Vitality, Mood, and Arousal ............................ 47
Table 13. Rotated Factor Loadings for Vitality, Mood, and Arousal ........................................ 48
Table 14. Demographic Profiles of Participants in Study 2 ....................................................... 53
List of Figures

Figure 1. Thematic map of people’s experiences of self-control and self-control failure. .......... 57
Chapter I: Introduction

People use self-control to shape and manage their lives. The process of setting goals, monitoring behaviour, and defining success and failure relative to those goals, is a highly personal process. The questions of why and how people have and lose self-control are central to understanding how they can more closely align their behaviour with their goals. My research used a triangulation mixed methods design to collect different but complementary data on the topics of self-control and self-control failure (Creswell & Clark, 2007; Greene, Caracelli, & Graham, 1989; Tashakkori & Teddlie, 2003).

In the first study, I took a quantitative approach to studying self-control. By operationalizing variables relevant to self-control in an experimental framework, I investigated if the way in which people take risks changes how they use self-control. Do people seek out risks that provide a replenishing sense of vitality? Specifically, based on predictions from the strength model of self-control, I used quantitative self-report and behavioural measures to investigate whether people indulge in risky choices to gain a sense of vitality that replenishes depleted self-control.

The quantitative and experimental approach to self-control in Study 1 allowed me to test specific predictions related to self-control, risk autonomy, and vitality. However, such methods provide little context for understanding how these constructs are experienced. That is, there is a disconnect between measuring self-control in a lab and the experience of using self-control in daily life. Moreover, there is a little research on qualitative aspects of self-control. To address this gap in the literature, in the second study, I conducted semi-structured interviews to explore people’s expectations and interpretations of their behaviour in situations where they experienced high and low self-control. Then, I used thematic analysis to yield a qualitative description of how self-control operates in people’s lives. Whereas Study 1 provides insight into the mechanisms of self-control and self-control failure, Study 2 provides context in understanding how these mechanisms fit into a larger narrative of self-control and self-control failure.

Overview

Of importance, I used the literature reviewed below as the theoretical framework for developing the Study 1 hypotheses (i.e., a deductive, theory-driven approach). Conversely, in Study 2, I used an inductive and data-driven approach to thematic analysis. Thus, the literature
review below provides the rationale for Study 1 and a context for interpreting and understanding the results of Study 2.

Specifically, in Chapter II, I provide a review of the literature relevant to self-control and self-control failure. I begin by defining self-control and reviewing the strength model of self-control, which conceptualizes self-control as a limited resource. I review basic and applied research evidence concerning factors that influence self-control depletion and replenishment. In particular, I highlight the role of subjective vitality as a possible experiential barometer of willingness to exert self-control strength. The vitality people experience in situations requiring self-control depends on their motivation. I review research concerning the impact of motivation and choice on vitality and self-control strength. Next, I examine how self-control depletion leads to risky choices, and propose that taking risks may increase subjective vitality, thereby replenishing perceived self-control strength. Finally, I provide my hypotheses for Study 1 and research questions for Study 2.

In Chapter III, I describe the methods used in Study 1. I give an overview of the study design, and describe the procedure for informed consent and participant recruitment. I explain how I operationalized vitality, self-control strength, and risk, and describe the experimental manipulations of self-control depletion and risk autonomy. In Chapter IV, I provide the results of Study 1. That is, after presenting preliminary analyses I begin by testing my three main hypotheses; I then present secondary analyses that clarify the relations among variables. In Chapter V I discuss the results of Study 1, including implications, limitations and questions for future research.

In Chapter VI, I describe the methods I used to collect and analyze semi-structured interview data in Study 2. I include a discussion of my sampling plan and recruitment methods, describe the demographics of my sample, and describe the interview procedure. I then describe my techniques for data management and thematic analysis, consisting of six phases. In Chapter VII, I provide an overview of the results of my thematic analysis. Then, in Chapters VIII through XIII, I provide a qualitative description of the six themes I identified in the interview data and a discussion of each theme. Specifically, Chapter VIII explores perceptions of self-control, comprising timing, definitions and the limits and difficulty of self-control. In Chapter IX, I discuss the participants’ expectations surrounding the outcomes of self-control success and
failure. In Chapter X, I consider internal attributions for self-control and self-control failure, including learning, goal-directed motivation, and perceptions of autonomy. In chapter XI, I review external attributions for self-control and self-control failure, including sources of external regulation. In Chapter XII, I explore the social contexts of self-control, with sub-themes of socially transmitted self-control, social comparisons, and social outcomes. Finally, in Chapter XIII, I discuss how expected replenishment strategies comprise thinking, doing, and avoiding.

In Chapter XIV I provide general discussion integrating the results of studies one and two, considering the themes of Study 2 in relation to the findings of Study 1. I suggest that future research would better understand self-control as embedded within motivational contexts.
Chapter II: Literature Review

Defining Self-Control and Self-Regulation

For the purpose of this research, I use the term “self-control” to refer to volitional behaviour, or behaviour whose initiation is at least partially conscious. Although the term self-control is often used interchangeably with “self-regulation” (e.g., Baumeister & Vohs, 2004), I refer to self-control as a subset of the broader category of self-regulation. Specifically, self-regulation involves both conscious and automatic processes, whereas self-control involves conscious, or executive, management of behaviour.

Exerting willpower, or self-control, allows people to attain their goals. Behaviour can be broadly characterized as goal directed and feedback controlled (Carver & Scheier, 2000). At a systemic, abstract level, people work towards an “ideal self” such that they move towards reference points that they value and away from undesirable reference points. Self-control is the ability to adjust or alter one’s behaviour in order to meet standards or goals. Thus, successful self-control requires four components: standards, monitoring, self-control strength, and motivation (e.g., Baumeister & Vohs, 2007). From a cognitive control perspective, self-control strength is exerted through the overlapping mechanisms of task motivation, task monitoring, and operating processes (i.e., activation of brain-based circuits; Robinson, Schmeichel, & Inzlicht, 2010). People use self-control strength to move towards valued standards (goals) as they monitor their progress. In addition, they must care about meeting a given standard in order to exert self-control strength. That is, without motivation, there can be no self-control.

Problems with self-control can be explained at diverse theoretical levels, ranging from self-control as a social process (e.g., Evensen, Salisbury-Glennon, & Glenn, 2001; Meyer & Turner, 2002), to barriers posed by specific environments and contexts (e.g., Roddy, Antoniak, Britton, Molyneux, & Lewis, 2006; Stead, MacAskill, MacKintosh, Reece, & Eadie, 2001), to dysfunctions in neurotransmitter systems, hemispheric regulation, and the prefrontal cortex (e.g., Carrasco, Sáiz-Ruiz, Hollander, & López-Ibor Jr., 1994; Rahman, Sahaklan, Cardinal, Rogers, & Robbins, 2001; Raylu & Oei, 2002), to personality traits such as impulsivity and sensation-seeking (Dom, Hulstijn & Sabbe, 2006; Donohew, Zimmerman, Cupp, Novak, Colon, & Abell, 2000; McCormick, Taber, Kruedelbach, & Russo, 1987; Nower, Derevensky, & Gupta, 2004; Petry, 2001; Raylu & Oei, 2002; Whiteside & Lynam, 2001; Zuckerman, Bone, Neary,
Mangelsdorff, & Brustman, 1972). These approaches can account for self-control failure, but they lack an integrated explanation of how self-control operates in daily life.

The strength model of self-control, in contrast, provides such an account, conceptualizing self-control as a limited resource. Like muscular strength, exerting self-control in one life domain means that less self-control is available for other domains (e.g., Baumeister, Bratslavsky, Muraven, & Tice, 1998; Baumeister, Vohs, & Tice, 2007; Muraven & Slessareva, 2003; Muraven, Shmueli, & Burkley, 2006; Muraven, Tice, & Baumeister, 1998). In Study 1, I use the strength model of self-control as a theoretical framework to examine whether risk autonomy and feelings of vitality predicts self-control success. Then, in Study 2, I expand the horizons of my inquiry to include how people construe and experience acts of self-control and self-control failure, using the concepts of risk, autonomy, and vitality as sensitizing factors in my analysis.

The Strength Model of Self-Control

The strength model of self-control posits that acts of self-control rely on a common reservoir. The initial formulation of the theory argues that each volitional action or decision depletes a little self-control. Depleting self-control in one area of your life means that you will have less self-control left for other areas of your life. A decade of research and dozens of studies support the conceptualization of self-control as a limited supply of willpower, rather than a primarily cognitive process or an acquired skill (e.g., Baumeister, 2003; Baumeister et al., 1998; Baumeister et al., 2007; Muraven et al., 1998; Vohs, Baumeister, Schmeichel, Twenge, Nelson, & Tice, 2008). A single reservoir of self-control strength fuels diverse regulatory actions, including managing thoughts and emotions, impulse and attentional control, guiding overt behaviour, and making choices (see Baumeister et al., 2007, for an overview). Depletion of self-control strength, originally referred to as ego depletion, occurs as a function of “deliberate, conscious, controlled responses by the self” (Baumeister et al., 1998, p. 1252).

The classic ego depletion experiment (Baumeister et al., 1998) involved either denying oneself radishes in favour of cookies, or denying oneself cookies in favour of radishes. The habitual or impulsive response for most people in this situation would be to eat the cookies, whereas denying oneself radishes in favour of cookies should not require much self-control. In fact, participants who denied themselves cookies persisted for less time on a frustrating task than did participants who denied themselves radishes. This study provided initial evidence that
self-control strength comes from a single reservoir. Since then, the same results have been found for diverse depleting activities. Exercising thought control (e.g., not thinking of a white bear), emotional control (e.g., remaining expressionless during a sad video), physical strength (e.g., squeezing a handgrip), or tolerating pain (e.g., the cold-pressor task) will deplete self-control (e.g., Baumeister et al., 1998; Muraven et al., 1998; Muraven & Slessareva, 2003; Muraven et al., 2006). When self-control is depleted, people’s behaviour is guided by automatic attitudes and impulses rather than by their conscious goals (Hofmann, Rauch, & Gawronski, 2007). Under conditions of depletion, delay of gratification becomes more difficult (Subramaniam, 2011).

Moreover, if self-control is depleted in one modality (e.g., physical endurance), there is less self-control remaining for other behavioural and emotional modalities (e.g., attentional and emotional control). Thus, self-control acts like a muscle. If self-control is depleted, some kind of replenishment must occur before self-control can once again be used at full capacity. Similarly, like a muscle, regularly exercising self-control increases self-control strength (Muraven, 2010a; Oaten & Cheng 2006a; 2006b; Oaten & Cheng, 2007).

**Applied settings for self-control depletion.** Evidence for the ecological validity of the strength model of self-control comes from research in applied settings. For example, as most students know, both the act of studying and the act of writing exams depletes self-control resources (i.e., cognitive, emotional and/or physical self-control strength). During periods of exam stress, students tend to exercise less, eat less healthy food, and ingest more caffeine and cigarettes, as compared to an early-semester baseline measurement (Oaten & Cheng, 2005). As daily demands for self-control increase, people’s ability to refrain from risky indulgences like sloth and gluttony diminishes. Similarly, Muraven (2010b) found that regularly practicing small acts of self-control (e.g., avoiding sweets or squeezing a handgrip) improved smoking cessation abstinence rates as compared to a control group who did not practice self-control.

Depletion of self-control has been associated with increased alcohol consumption, especially when participants planned to limit their drinking. In a field study, self-control demands were directly related to same-day alcohol consumption, such that people who experienced greater self-control demands subsequently drank more alcohol and became more intoxicated (Muraven, Collins, Shiffman, & Paty, 2005). Furthermore, it appears that planning to refrain can make indulgence more likely once self-control has been depleted: the stronger the participants’ intention to limit drinking, the more self-control demands impacted later alcohol
consumption. Muraven and colleagues (2005) found that trait self-control moderated the relationship between situational self-control demands and alcohol consumption, such that the relationship between self-control demands and alcohol consumption was stronger for those who were low (rather than high) in trait self-control. This diary study demonstrated that self-control depletion leads to later lapses in self-control, and that self-control depletion is more problematic for those chronically low in self-control. Although the strength model of self-control should be tested in more applied settings, with different types of behaviour, both basic and applied research supports the conceptualization of self-control strength as a limited resource. When people exert self-control to avoid temptation, they exploit a limited resource, and their overall self-control strength is depleted.

**Replenishing Self-Control**

Once self-control is depleted, it must be replenished; the reservoir must be refilled before it can be emptied again. Just as diverse activities can deplete self-control, there is no single path to self-control replenishment.

**Sleep and rest.** The most common means of self-control replenishment is through sleep. People who are well rested and less fatigued tend to have better self-control (Barber, Munz, Bagsby, & Powell, 2010; Baumeister, Heatherton, & Tice, 1994; Hagger, Wood, Stiff, & Chatzisarantis, 2010; Sadeh, Gruber, & Raviv, 2002). In addition, sleep appears to remove the effects of previous self-control depletion. For example, Muraven and colleagues (2005) found that self-control demands predicted same-day alcohol consumption, but not alcohol consumption the next day, suggesting that the act of sleeping restores self-control strength.

Resting or relaxing for a sufficient period of time appears to have similar replenishing effects on self-control. Tyler and Burns (2008) found that time and relaxation both replenish depleted self-control. Specifically, previously depleted participants who waited for 10 minutes (instead of one or three minutes), or listened to soothing music after being instructed to relax, did not show evidence of depletion on a subsequent task assessing self-control. Of interest, being instructed to relax appears to accomplish replenishment more quickly than simply waiting, although both tactics are ultimately effective (Tyler & Burns, 2008).
**Blood glucose.** Blood glucose has been implicated as a mechanism of self-control, such that lower blood glucose is associated with lower self-control. Gailliot and colleagues (2007) found that exerting self-control decreases blood glucose as compared to pre-depletion baseline and that low blood glucose is associated with lower subsequent self-control strength. Similarly, increasing blood glucose increases self-control; depleted participants who drank a glucose-sweetened beverage performed better on several self-control measures than did participants who drank a beverage sweetened with a sugar substitute (Gailliot, Baumeister, DeWall, Maner, Plant, Tice et al., 2007).

Further evidence for the role of glucose in self-control comes from a review by Gailliot and Baumeister (2007) showing that attentional control and emotion regulation are detrimentally affected by low blood glucose levels, and that impulsive and aggressive behaviour increase as blood glucose decreases. Similarly, there is some evidence that alcohol reduces glucose in the frontal cortex, the area of the brain responsible for self-control, and that glucose improves the chance of quitting smoking successfully (see Gailliot & Baumeister, 2007). Lack of glucose is related to loss of control over aggressive behaviour; this can be demonstrated experimentally in the lab by manipulating glucose ingestion and measuring aggression, and through examination of diabetes and crime rates at the state level, and glucose metabolism disorders and killing rates at the international level (DeWall, Deckman, Gailliot, & Bushman, 2011).

Blood glucose appears to provide a simple, yet inclusive, physiological mechanism to explain self-control depletion. However, there is not yet a solid link between different means of self-control replenishment and concomitant increases in blood glucose. It may be that blood glucose is only one of many physiological and psychological mechanisms involved in self-control replenishment. For example, there is some evidence that heart-rate variability is a physiological indicator of self-control effort and capacity (Geisler & Kubiak, 2009; Reynard, Gevirtz, Berlow, Brown, & Boutelle, 2011; Segerstrom & Nes, 2007).

**Positive affect.** Positive affect appears to have mixed effects on self-control strength. Tice, Baumeister, Shmueli, and Muraven (2007) found that receiving a surprise gift or watching a humorous movie increased positive mood but not arousal. In turn, positive mood replenished self-control in depleted participants, such that they were able to persist for longer on tasks of physical and mental persistence than participants who did not experience positive mood after
depletion. However, other researchers have found that positive affect does not replenish self-control. For example, listening to a short piece of music that increased positive mood (and decreased negative mood) did not impact self-control strength (Schmeichel & Vohs, 2009).

It appears that not all positive moods are equally effective at replenishing depleted self-control. It may be that positive moods that increase perceptions of available energy tend to replenish self-control strength. Indeed, the link between rest, blood glucose, and replenishing positive mood may be a specific form of positive affect: a feeling of vitality. If resting, increasing blood glucose, and experiencing replenishing positive affect all increase the perceived energy available to the self, then subjective vitality may be a way of monitoring and managing our available self-control resources.

**Vitality: An Overview**

Subjective vitality is a “positive feeling of having energy available to the self” (Nix, Ryan, Manly, & Deci, 1999, p. 266). Although different types of positive affect tend to be moderately correlated (Watson & Tellegen, 1985), some research shows that subjective vitality can be distinguished from states of pleasant mood or high arousal by its relation to self-control (Muraven, Gagné, & Rosman, 2008). Vitality is associated with a feeling of high energy or liveliness, whereas positive mood (happiness) may occur as a non-energetic feeling of contentment or satisfaction, and positive arousal may occur as feeling nervous or jittery (Mayer & Gaschke, 1988; Nix et al., 1999; Watson & Tellegen, 1985). In addition, subjective vitality and happiness appear to be phenomenologically distinct (Nix et al., 1999). Ryan and Frederick (1997) defined vitality as “one’s conscious experience of possessing energy and aliveness” (p. 530), and as “an accessible phenomenal state reflecting the energy felt to be available to the self” (p. 537). Thus, vitality can also be defined as the experience of available self-control strength; subjective vitality may act as a barometer of self-control strength (Moller, Ryan & Deci, 2006; Ryan & Deci, 2008).

The correlates of vitality are consistent with its conceptualization as ‘experienced self-control strength’. Like self-control strength, vitality is related to fewer experiences of negative affect and more positive affect (Baumeister et al., 1994; Ryan & Frederick, 1997). Chronic pain management is associated with self-control depletion; chronic pain patients tend to experience less vitality than matched controls, and vitality covaries with physical symptoms (Ryan &
Frederick, 1997; Solberg Nes, Roach, & Segerstrom, 2009). Ryan and Frederick (1997) found that people high in subjective vitality tend to score higher on measures of mental and physical health, as well as perceived self-determination. Feelings of vitality also predict higher global success at self-control (Sharp, 2009). Indeed, an important distinction between vitality and happiness or positive mood is that motivational states tend to affect vitality but not happiness (Muraven, et al., 2008; Nix et al., 1999).

**Motivation and Self-Control**

Successful self-control requires sufficient motivation. Motivation to exert self-control depends on one’s incentive to do so, which in turn depends on the attractiveness of the expected outcome, and on one’s perceived likelihood of success (Brehm & Self, 1989). If people believe a task is important, they can overcome the effects of previous self-control depletion. For example, Muraven and Slessareva (2003, p. 896) found that telling participants that their performance on an unsolvable tracing task was “to provide scientific evidence for the development of new therapies for patients with Alzheimer’s disease” removed any difference in tracing persistence between depleted and non-depleted participants. When they received no explanation for the tracing task, depleted participants persisted for less time than non-depleted participants.

Motivation to overcome self-control depletion may be intrinsic or extrinsic, as well as conscious or automatic. Depleted participants who were well paid to drink a bitter-tasting beverage consumed as much as non-depleted participants (Muraven & Slessareva, 2003). When paid poorly, depleted participants drank less of the bitter beverage than non-depleted or well-paid participants. Depletion and motivation did not interact to affect the amount of sweet-tasting drink consumed, which suggests that tasks not requiring self-control are not affected by previous depletion. Non-conscious motivation also increases self-control strength: Alberts and colleagues (2007) found that priming persistence buffers the effects of depleting activities on self-control strength, such that depleted participants who experienced a persistence prime persisted for longer on physical measures of self-control (i.e., muscular strength).

Taken together, these results suggest that one effect of self-control depletion is an unwillingness, rather than an inability, to exert further self-control. It may be that self-control becomes harder to obtain as it is used (like taking water from a deep well). However, it may also be that using up self-control motivates conservation of limited resources. That is, people may
gauge their available self-control strength, or subjective vitality, and use that information to determine future self-control striving.

**Active management of self-control.** Research by Muraven and colleagues (2006) supports the conservation model of self-control. Conservation of self-control strength for future demands only occurs when the future task is expected to require self-control and when future demands are made salient. Under these conditions, people may choose not to exert self-control, and instead to save their self-control strength for later. Depleted participants who anticipated future self-control demands persisted for less time on a cold-pressor task than did either depleted participants who did not anticipate future self-control demands, or non-depleted participants. When people are aware of future demands, they may also be consciously aware of a need to conserve self-control. Specifically, after the cold-pressor task, the depleted participants who anticipated future self-control demands reported that energy conservation was more important than did non-depleted participants or depleted participants who did not anticipate future self-control demands. Thus, it appears that people monitor their remaining self-control strength, or vitality (i.e., energy available to the self), in order to actively manage their self-control.

Further, evidence suggests that conservation of self-control is a “reasonable and successful strategy” (Muraven et al., 2006, p. 535). Depleted participants who anticipated future self-control demands performed more poorly on an intervening Stroop task than did participants who did not anticipate future self-control demands, or non-depleted participants. However, those participants who conserved their self-control strength on the penultimate task ended up persisting for longer on the final task of unsolvable anagrams than did depleted participants who did not conserve their energy. Of interest, Freeman (2011) reported that active management of self-control does not occur for anticipated demands on self-control, suggesting that monitoring and management of self-control strength only occurs when some depletion has occurred. How do self-awareness and monitoring affect self-control strength? It appears that focusing on the self makes self-control easier. Depleted participants who were primed to be self-aware performed better on a subsequent test of self-control than did participants who received a neutral prime (Alberts, Martijn, & de Vries, 2011).

Taken together, these findings suggest that depletion is a motivation problem, not a problem with lack of resources *per se*. People engage in active management or rationing of their
self-control resources. That is, once people begin to use self-control strength, if they expect that they will need to use a great deal of self-control in an upcoming situation, they will conserve their self-control so that there is “more for later.” People can use self-awareness to reduce the effects of self-control depletion (likely by influencing motivation); in addition, they may also seek out means of either replenishing their depleted self-control or making subsequent self-control striving easier.

**Self-control is a state of mind.** Individual beliefs about the sustainability and limits of self-control strength predict self-control performance after a depleting activity (Job, Dweck, & Walton, 2010). Self-control depletion does not occur uniformly, but depends on the extent to which people anticipate that an activity will be depleting, and their perceptions of their inner self-control resources. If people believe an activity saps self-control strength, then that activity will be depleting. If people believe an activity will replenish their self-control strength, then that activity will be replenishing. Clarkson and colleagues (2011) manipulated depletion status and depletion feedback and measured subsequent self-control strength. Participants who believed that a depleting activity was actually replenishing showed higher self-control than did depleted participants who received no such feedback. Participants who believed that a non-depleting activity required a lot of willpower showed signs of self-control depletion relative to comparison groups. Similarly, Job and colleagues (2010) found that implicit theories about whether or not self-control was a limited resource moderated the effects of self-control depletion; only participants who viewed self-control as a limited resource experienced self-control depletion. Of importance, self-reported exhaustion after the depleting task mediates the interactive effect of depletion and implicit theory condition on self-control performance. That is, both participants who viewed self-control as a limited and unlimited resource found the depleting task exhausting, but only those who viewed self-control as limited showed a decline in subsequent self-control performance (Job et al., 2010).

Thus, not all activities that involve executive control are immediately depleting, especially if people do not expect that their self-control is limited. What is the experiential difference between depleting and maintaining self-control strength? There is some evidence that loss of self-control is not just a form of fatigue. Participants who were deprived of sleep for 24 hours and then engaged in a depleting emotional regulation task performed identically on a subsequent test of aggressive responses as compared to depleted participants who were not sleep
deprived (Vohs, Glass, Maddox, & Markman, 2011). The authors suggest that self-control resource depletion is somehow different from the fatigue caused by sleep deprivation. The difference may be that resource depletion affects perceptions of vitality, whereas sleep deprivation does not. However, it may also be that fatigue and sleep deprivation affect some kinds of self-control more than others. For example, after a night of sleep deprivation, participants engaged in more risky, gain-seeking economic decisions and exhibited poorer performance on a vigilance task than well-rested controls (Venkatraman, Huettel, Chuah, Payne, & Chee, 2011).

If subjective vitality is a marker or gauge of willingness to exert self-control strength, then people may seek out activities that increase vitality as a means of managing depleted self-control. What kinds of activities increase vitality and self-control strength? Although the construct of vitality is addressed by diverse theories and philosophies (see Ryan & Deci, 2008), the concept of vitality or “aliveness” as an important factor in motivation is explicitly addressed by self-determination theory, such that acts that are freely chosen are associated with more vitality. If this is the case, then not all choices are equally depleting, and some may actually be replenishing.

Self-Control, Self-Determination Theory, and Vitality

Although the strength model of self-control initially proposed that all executive control is equally depleting (e.g., Vohs et al., 2008), new findings suggest that certain kinds of self-control are more depleting than others. In particular, the more that acts requiring executive control are autonomously and intrinsically motivated, the less depleting they are (Sharp, 2009). That is, forced or extrinsically motivated self-control is more depleting than self-control that is freely chosen.

**Self-determination theory.** Acts of self-control are motivated by the attainment of long-term goals. These long-term goals are in turn formed with reference to relevant standards, ideals, norms, and expectations (Baumeister et al., 1994). For example, people may refrain from eating dessert or get up early to go to the gym to attain a weight-loss goal. Others may refrain from buying lottery tickets in order to save for a vacation, or work on a boring project to avoid their boss’ displeasure. Deci and Ryan’s (1985, 1991) *Self-Determination Theory* (SDT) describes the motivation underlying acts of self-control. SDT proposes that people are generally motivated by
three innate psychological needs: competence, autonomy, and relatedness (Deci & Ryan, 2008; Ryan & Deci, 2000). According to SDT, people seek out activities that promote these three needs, such that “it is part of the adaptive design of the human organism to engage [in] interesting activities, to exercise capabilities, to pursue connectedness in social groups and to integrate…experiences into relative unity” (Deci & Ryan, 2000, p. 229). The degree to which people are intrinsically motivated to engage in a given activity will depend on the degree to which that activity satisfies psychological needs for autonomy, competence, and relatedness (Deci & Ryan, 2000; Ryan & Deci, 2006). In particular, intrinsic motivation cannot occur in the absence of perceived autonomy (Deci & Ryan, 2000).

Although intrinsic motivation is associated with beneficial outcomes (e.g., performance, health, well-being), not all extrinsic motivation predicts poor outcomes. Specifically, SDT refers to a continuum of motivation, ranging from non-regulation to intrinsic regulation (Ryan & Deci, 2000). Non-regulation is an amotivational state—otherwise known as a complete lack of self-control strength. Extrinsic motivation can be broken down into external, introjected, identified, and integrated regulation. Externally regulated behaviour is controlled by external contingencies (e.g., external rewards and punishments), whereas introjected behaviour is controlled by internal contingencies (e.g., self-esteem, guilt). People who engage in identified behaviour perceive an inherent value in that behaviour (e.g., exercising because you value being healthy), whereas integrated behaviours are part of personal values or identity (e.g., exercising because you see yourself as an athlete). Integrated behaviours result in “self-determined extrinsic motivation” (Deci & Ryan, 2000, p. 236). Intrinsically motivated behaviours are autonomously chosen behaviours that are inherently satisfying (e.g., exercising because it feels good; Deci & Ryan, 2000). Thus, motivation, behaviour, and perceived autonomy occur in parallel.

Self-control (or a lack thereof) may initiate from any point on the continuum of regulation. Of importance, however, is that behaviour that results from integrated or intrinsic regulation may not feel like self-control. Instead, these kinds of autonomous regulation are associated with feelings of interest and enjoyment (i.e., vitality), and the behaviour is valued as an end in itself (Ryan & Deci, 2000; Ryan & Deci, 2008). According to SDT, people innately (automatically) engage in behaviours that satisfy their needs for autonomy, competence, and relatedness, and perceived autonomy is required for intrinsic motivation (Deci & Ryan, 2000). Therefore, it may be that self-control depletion makes us more likely to engage in behaviours
that satisfy these needs. Furthermore, the sense of vitality resulting from autonomously motivated behaviour may actually replenish depleted self-control.

Causality orientations and motivation. According to SDT, the effects of engaging in a particular act of self-control will differ depending on the locus of causality perceived by the actor. Locus of causality “refers to the perceived source of initiation and regulation of behaviour” (Deci & Ryan, 1985, p. 113). Deci and Ryan (1985; 2000) describe three general motivational orientations to regulatory acts: internal, controlled, and external. Autonomous acts are associated with a high perceived degree of choice, an internal locus of causality, and tend to be intrinsically motivated. Controlled acts are associated with pressure from outside forces (e.g., money, deadlines, approval from others), and as such, are motivated by extrinsic rewards. Impersonal acts are perceived as being beyond conscious control. People with an impersonal orientation “experience tasks as being too difficult and/or outcomes as being independent of behaviour” (Deci & Ryan, 1985, p. 112). Deci and Ryan (1985) argue that causality orientations are enduring personality traits, and that the extent to which one tends to experience the initiation of acts as autonomous, controlled, or impersonal predicts later affective, cognitive, and behavioural outcomes. For example, an autonomous locus of causality is associated with higher self-esteem, and autonomous acts are associated with less hostility and guilt (Deci & Ryan, 1985). In contrast, controlled acts are associated with more hostility, less effort, and reduced performance. Of importance, lower intrinsic motivation on an initial task is associated with less freely chosen persistence on subsequent similar tasks, and lower interest/enjoyment and perceived choice (Ryan, Koestner, & Deci, 1991). These findings suggest that acts of self-control that are approached from an autonomous locus of causality are less depleting than acts of self-control that are approached from a controlled locus of causality. The phenomenological difference between perceived autonomy and perceived control impacts subsequent self-control strength; the barometer of this difference may be subjective vitality. If autonomous choices maintain vitality, then they may also maintain self-control strength.

Self-Control and Choice

Behaviour under executive control is consciously chosen. The Rubicon model of action (Gollwitzer, 1990; Heckhausen & Gollwitzer, 1987) describes the process of choice as consisting of three phases: 1) deliberating about possible options, 2) making the choice itself, and 3) implementing the chosen option. In this model, the choice is the Rubicon; once a choice has been
made, the chooser has cognitively passed a point of no return. Making a choice is essentially forming an implementation intention or a “conditional program for future behaviour” (Vohs et al., 2008, p. 892), such that behaviour aligned with this choice is facilitated and other behaviour is inhibited.

However, are all conscious choices necessarily depleting? Ryan and Deci (2008, p. 702) argue, “autonomous or truly volitional forms of self-regulation will not result in ego depletion” and that “SDT therefore specifically predicts that activities that satisfy psychological needs for relatedness, competence, and autonomy will result in energy maintenance or enhancement.”

**All choices are depleting.** Vohs and colleagues (2008) argue that it is the act of choice, more so than deliberation or implementation, which is depleting. This assertion is supported by evidence that making choices about a customized computer is more depleting than deliberating about what to choose without actually choosing, or implementing a choice made by someone else (Vohs et al., 2008). There is evidence that the simple act of exercising executive control to make consumer choices is depleting (see Baumeister, Sparks, Stillman, & Vohs, 2008, for a review). Participants who were asked to choose between alternatives in a mock-shopping task were more depleted than those who simply rated the products (Vohs et al., 2008). Similarly, in a field study, shoppers who reported making more active decisions earlier that day correctly solved fewer math problems than did shoppers who reported making fewer active decisions (Vohs et al., 2008). In this case, physical fatigue did not predict math performance, suggesting that self-control strength is at least partially independent of physical stamina. Further evidence that choice is depleting comes from research showing that as effortful choices become automatized, self-control depletion is reduced. Specifically, once self-control becomes a habit, it is no longer as depleting. Self-control depletion occurs for effortful and volitional acts; when these behaviours become automatic, they require less effort (e.g., Oaten & Cheng, 2006a; 2006b; 2007). Even when a behaviour requiring self-control is not yet habitual, it can be removed from conscious control by forming implementation intentions. Implementation intentions take the form of “I intend to do X when situation Y occurs” (Gollwitzer, 1999; Gollwitzer & Brandstätter, 1997). Forming an implementation intention helps automatize behaviour by “creating mental links between specific situational contexts and goal-directed behaviors” (Gollwitzer & Brandstätter, 1997, p. 198). Therefore, forming implementation intentions about how to best perform a task requiring self-control will decrease the ensuing depletion. Webb and Sheeran (2003) found that
depleted participants who formed implementation intentions regarding a Stroop task performed as well as non-depleted participants. Forming an implementation intention removes the need for volitional choice in a situation requiring self-control. Instead, the behaviour becomes automatized, removing the need for executive control. In particular, removing the act of conscious choice from a behaviour means that engaging in that behaviour no longer requires self-control. For example, if one has free access to snacks, one must exert self-control to avoid eating the snacks. In contrast, if one is told not to touch the snacks, then self-control is not depleted in refraining from eating the snacks (Vohs & Heatherton, 2000). Thus, a simple automatic heuristic of “Do not touch” is sufficient to override the impulse to eat the snack, and removes the requirement of volition or self-control. It appears that choosing to avoid temptation is more depleting than being told that a temptation is forbidden. However, choosing to avoid temptation is usually not intrinsically motivated, and people may perceive relatively low autonomy over such decisions. For example, avoiding snacks is rarely inherently satisfying, but instead is motivated by concerns about internal and external contingencies (e.g., guilt, judgement from others). In contrast, more autonomous choices may maintain subjective vitality and self-control strength.

Some choices are more depleting than others. In the original series of experiments describing the strength model of self-control, Baumeister and colleagues (1998) found that participants who were told to choose whether they should make a pro- or counter-attitudinal speech related to tuition increases showed evidence of self-control depletion, as compared to participants who were assigned to a speech condition. In this experiment, participants were told that “the decision of which speech to make was entirely up to them,” but the experimenter further explained that “because there were already enough participants in one of the groups, it would help the study a great deal if they chose [one condition] rather than the other” (Baumeister et al., 1998, p. 1257). Participants in the choice condition did not show significant differences in self-control depletion, regardless of speech condition. Thus, Baumeister and colleagues (1998, p. 1258) concluded that it is “the exercise of choice, regardless of behaviour, that depletes the self.”

However, this position has been criticized by Moller and colleagues (2006), who argue, in support of Nix and colleagues (1999) that autonomous choices are not depleting. In particular, Moller and colleagues point out that the “choice” provided to participants in the Baumeister et al. experiment was not a free choice. Instead, the experimenter pressured participants to choose a
particular condition, and all participants subsequently agreed to give a speech in the suggested condition. Moller and colleagues (2006) reference SDT, which explains that the locus of causality of a decision, or the perception that a choice is “truly free,” will impact the outcomes of that choice. Autonomous choices enhance subjective vitality and intrinsic motivation (e.g., Nix, et al., 1999), and result in more persistent goal-directed behaviour (e.g., Pelletier, Fortier, Vallerand, & Brière, 2001). In addition, it appears that false or controlled choices may be more depleting than having no choice at all. Moller and colleagues replicated the speech experiment from Baumeister et al. (1998), but added an autonomous choice condition. The authors found that controlled choices were more depleting than either no-choice or autonomous choice conditions. Furthermore, participants who made autonomous choices about what activities they would perform in the second half of the experiment performed better on several subsequent tests of self-control, including a physical persistence measure and a measure of attentional control (a searching task with complicated rules), than did participants who received a “suggestion” that they should engage in a given activity (i.e., controlled choice). Finally, Moller and colleagues (2006) found that perceived autonomy mediated the relationship between choice condition (i.e., autonomous vs. controlled choice) and performance on the search task, although the mediation model was not significant for the persistence task. These results suggest that autonomous self-control is less depleting than controlled choice.

Sharp (2009) reported that controlled choices were associated with lower perceived energy, whereas more autonomous choices were associated with perceptions of maintaining or increasing energy. Furthermore, vitality may mediate the relation between motivational orientation and self-control success (Sharp, 2009). When people perceive that a task is “fun” instead of “work,” completing that task may yield a sense of vitality that facilitates subsequent self-control (Laran & Janisewski, 2011).

**Autonomous self-control maintains vitality.** Feelings of subjective vitality can be manipulated by changing an individual’s personal agency in a task, or perceptions of locus of causality. That is, the more a person’s actions are autonomous (as opposed to controlled by outside forces), the more subjective vitality that person will experience. For example, Nix and colleagues (1999) found that completing a card sorting task by making forced choices (choices yoked to the choices of another person) leads to less perceived vitality than completing the same task making free (autonomous) choices. In addition to actually making autonomous choices,
subjective vitality can be manipulated by simply imagining that one has made an autonomous choice. Specifically, after reading a vignette describing taking a university course for autonomous reasons (i.e., interest rather than a requirement), and subsequently getting an “A” in the course, participants expected that they would feel more subjective vitality than did participants who read a vignette where the course was a requirement. There was no evidence of a difference in happiness between the two conditions (Nix et al., 1999). Thus, either experiencing or imagining a lack of autonomy appears to deplete perceived vitality in comparison to experiencing or imagining a more autonomous situation.

Muraven (2008) found that autonomous self-control is less depleting than avolitional self-control. In this case, all participants received the same instructions on a self-control task, and variability in perceived autonomy predicted performance on a physical strength measure of self-control (after controlling for baseline strength). The author suggested that “autonomously motivated self-control is more energizing and vitalizing than self-control that feels forced upon the person” (Muraven, 2008, p. 769).

Thus, autonomous choices may be less depleting because they maintain a sense of vitality. The Wisconsin Card Sort (WCS; Grant & Berg, 1948) is a cognitive task requiring participants to sort cards based on the card’s shape, colour, and number in order to identify an overall pattern. The sorting criteria change regularly in the WCS, which means that cognitive flexibility is an important component in card sorting performance. Nix and colleagues (1999) found that completing the WCS by being forced to repeat the behaviours of a previous participant (yoked responses) is associated with decreases in vitality, whereas completing the WCS by making one’s own choices maintains vitality (Nix et al., 1999). The manipulation did not influence positive affect: happiness did not change from baseline for either participants in the yoked condition or participants in the free-choice condition. This evidence suggests that not all choices are equally depleting—autonomous choice may be less depleting than no choice due to differences in subjective vitality. If vitality mediates the effects of conscious cognitive effort on self-control strength, then autonomous (freely chosen) self-control that maintains subjective vitality should not be depleting. Indeed, autonomous tasks that lead to increases in vitality should lead to subsequent increases in self-control performance. In contrast, controlled tasks that lead to decreased vitality should lead to subsequent decreases in self-control performance.
Muraven and colleagues (2008) tested this hypothesis by crossing an autonomy support manipulation (controlling or supportive experimenter conduct) with the classic cookie/radish self-control depletion set-up. The authors assessed intrinsic motivation (operationalized as interest/enjoyment) and then assessed subsequent performance on a vigilance task. Participants in the autonomy support condition expressed more interest/enjoyment than did participants in the controlling condition, but mood and arousal did not differ across conditions. Depleted participants in the controlling condition performed worse on the vigilance task than did participants in the other three conditions. Thus, autonomy support reduces the effects of self-control depletion. Put another way, perceived self-control strength depends not only on previous self-control exertion, but also on the motivation for exerting self-control. More autonomous, intrinsic motivation increases interest and enjoyment, which in turn bolsters willingness to use self-control strength. In two follow-up studies, Muraven and colleagues found that the relation between autonomy support and subsequent self-control performance is mediated by subjective vitality.

It appears that more autonomously motivated acts of self-control lead to higher subjective vitality, which in turn improves self-control performance. For example, Vohs and colleagues (2008) found that participants who selected items for a wedding gift registry for 12 minutes, rather than 4 minutes, subsequently showed less self-control. However, for participants who made choices for only 4 minutes, the effect of choice on later depletion was moderated by the anticipated enjoyment of the activity. Participants who expected not to enjoy the activity found making 4 minutes worth of choices about as depleting as participants who made choices for 12 minutes. In contrast, participants who expected to enjoy the activity showed no significant difference in depletion from the no-depletion group. There was no evidence of a relationship between positive or negative mood and anticipated enjoyment. Given that intrinsic motivation is often operationalized as “enjoyment,” and that intrinsic motivation is associated with subjective vitality, these results suggest that expectations regarding subjective vitality may influence self-control striving.

The findings of Vohs and colleagues (2008) are consistent with evidence from Moller and colleagues (2006) that making autonomous (and presumably more pleasant or enjoyable) choices was not depleting whereas making controlled choices is depleting. However, it appears that even for those who anticipated enjoying the registry task, more than 4 minutes of making
meaningless choices reduced the autonomous motivation for engaging in the task, and the once pleasant activity eventually became depleting. The problem with the statement “autonomous behaviour is not depleting” is that, eventually, even the most intrinsically motivated behaviour becomes less enjoyable over time. An artist may be autonomously motivated to paint, but even the most dedicated virtuoso will eventually feel depleted. Attempting to find the tipping point between autonomous and controlled motivation is beyond the scope of my proposed research. Instead, I take a mixed method approach to examine how perceptions of autonomy and vitality relate to participants experiences of self-control and self-control failure.

**Self-Control and Risky Behaviour: Replenishing Indulgence or Unanticipated Outcome?**

Risky behaviour involves exposing oneself to the potential for harm or loss (e.g., physical, emotional, financial). A wealth of previous research shows that trait self-control is related to risky behaviour, such that those low in trait self-control are more likely to take risks (e.g., Baumeister et al., 1994; Freeman & Muraven, 2010; Tangney, Baumeister, & Boone, 2004). Chronically low self-control has been associated with risky behaviours, including substance abuse, gambling, harmful sexual behaviours, disordered eating, aggressive behaviours, and crime (Baumeister et al., 1994). Of interest, Gottfredson and Hirschi’s (1990) *General Theory of Crime* argues that individual differences in self-control are predictive of “imprudent behaviour,” including substance abuse, gambling, and illegal activities. Arneklev, Grasmick, Tittle, and Bursik (1993) identify six elements from the General Theory of Crime that constitute the personality trait of “low self-control”: 1) impulsivity, 2) a preference for simple tasks, 3) risk-seeking, 4) a preference for physical activities, 5) self-centredness, and 6) a quick temper. Gottfredson and Hirschi (1990, p. 91) argue that these six factors combine into a “stable construct.” However, an examination of the six constituent pieces of self-control found that risk-seeking predicted imprudent behaviour (i.e., drinking and gambling) better than a composite measure created from all six factors, or from the four top factors (i.e., impulsivity, self-centred, temper, and risk-seeking; Arneklev et al., 1993). Similarly, when self-control is operationalized as “impulsivity,” it predicts engagement in illegal activities and risky sexual behaviour in problem gamblers (Martins, Tavares, da Silva Lobo, Galetti, & Gentil, 2004). Thus, impulsivity and risk-seeking appear to be common outcomes of self-control failure.

Given that self-control, by definition, involves overriding impulses, it is not surprising that impulsive people tend to have less self-control (this is almost a tautology). However, seeking
out “exciting, risky, or thrilling” (Gottfredson & Hirschi, 1990, p. 89) situations suggests that people engage in “imprudent behaviour” because they enjoy taking risks. Risk-taking behaviour might be motivated by the rewards associated with the risk, such as stealing to gain money or smoking to replenish nicotine. Risk-taking behaviour might also be motivated by the thrill of the risk itself (Lupton & Tulloch, 2010; Lyng, 1990), such as the “sneaky thrill” of shoplifting (Katz, 1988), the rebellious thrill of underage smoking (Dewhirst & Sparks, 2003), or the exhilaration associated with “edgework” like rock climbing or drug abuse (Lyng, 1990). Indeed, there is evidence that it is the sensations of thrill and excitement rather than an actual potential for personal danger that attract us to “risky” leisure activities such as adventure tourism and skydiving (Cater, 2006; Celsi, Rose & Leigh, 1993). Engaging in activities with a potential for personal harm involves managing the situation to maintain a comfortable level of risk (Dimmock, 2009). In addition, as shown by Schneider and colleagues’ (2007) investigation of adventure racers, through personal experience and a process of risk socialization, people’s capacity to take “smart” risks improves with age. That is, even for those who regularly engage in risky behaviour, the risks are aversive unless they are perceived to be relatively autonomous (Lyng, 1990; Schneider, Butryn, Furst, & Masucci, 2007).

In general, people tend to engage in riskier behaviour (e.g., engaging in a high-stakes bet) when they are in a bad mood (see Baumeister et al., 1994, for a review). However, rather than engaging in risky behaviour to repair a bad mood, it may be that people engage in risky behaviour to restore depleted self-control.

**Risky behaviour can result from depleting mood repair.** Negative affect and emotional distress are associated with subsequent risky behaviour (see Baumeister et al., 1994 for a review). Why does negative affect predict risky behaviour? Tice, Bratslavsky, and Baumeister (2001) argue that impulse control breaks down during periods of negative affect because regulating emotional distress takes precedence over self-control. According to this viewpoint, people indulge to repair a bad mood. However, risky indulgences like eating and gambling do not result in lasting mood change (Ratelle, Vallerand, Mageau, Rousseau, & Provencher, 2004; Thayer, 1987; Thayer, Newman, & McClain, 1994), and lead to both positive and negative emotions (Ramanthan & Williams, 2007). Given that indulging does not necessarily make participants experiencing negative affect actually feel better, what is the point of the indulgence?
Bruyneel and colleagues (2009) argue that risky behaviour is actually a consequence of self-control depletion stemming from mood regulation attempts. For example, if mood regulation efforts deplete self-control, then depletion through mood regulation should be associated with risky behaviours like lottery purchases regardless of whether or not the mood regulation was successful. Bruyneel and colleagues (2009) found that negative affect predicted lottery ticket purchases such that participants who entered the lab with more negative affect engaged in more risky behaviour (i.e., purchased more lottery tickets) 25 minutes later. However, negative affect assessed immediately prior to the lottery purchase did not predict lottery expenditures. Only temporally distant negative affect predicted risky behaviour, suggesting that self-control depletion caused by intervening mood regulation attempts in turn caused the risky behaviour. Similarly, risky behaviour increased immediately after depleting mood regulation attempts, but not for participants whose mood regulation was not depleting or for participants whose negative mood was not regulated (Bruyneel et al., 2009). It appears that negative mood is the distal cause of risky behaviour, and depletion (e.g., through mood regulation attempts) is the proximal cause.

Evidence from Freeman and Muraven (2010) supports Bruyneel and colleagues’ claim that depleted self-control leads to risky choices. Specifically, Freeman and Muraven (2010) found that participants whose self-control was depleted by a behavioural control task subsequently endorsed riskier choices in 12 scenarios requiring a decision between two possible courses of action. In a second study, Freeman and Muraven (2010) found that participants depleted by a previous attentional control task made riskier choices on the Balloon Analogue Risk Task (BART; Lejuez, Read, Kahler, Richards, Ramsey, Stuart et al., 2002). The BART gives participants a small cash reward each time they pump up a virtual balloon. Participants were informed that the balloon could explode at any time, and participants could end the trial by cashing out their earnings. If the balloon exploded before they cashed out, they lost all of their money. The probability of the balloon exploding increased with each pump, although participants were not provided with this information. Freeman and Muraven (2010) found that depleted participants pumped balloons more times before cashing out than non-depleted participants. In addition, participants low in trait self-control also pumped the balloons more times before cashing out. There was no significant interaction between state and trait self-control, supporting an additive model. In this case, depleted participants made riskier choices, even when there was potential for loss (punishment). Risk-taking was unrelated to mood valence.
or arousal. This provides further evidence that depleted self-control, rather than affective state, is the proximal predictor of risky behaviour.

**The rewards of risk.** Why then do depleted individuals engage in risky behaviour? Bruyneel and colleagues (2009) argue that self-control depletion leads to a propensity to make risky choices. Specifically, they argue that depleting mood regulation sensitizes people to possible rewards, such that they perceive rewards as more likely to occur, leading to risky choices. Freeman and Muraven (2010) argue that self-control depletion affects “how risky situations are being processed rather than just leading individuals to seek greater rewards” (p. 179). Supporting this view, Schmeichel and colleagues (2010) found that self-control depletion increases approach motivation and incentive sensitivity. However, this approach motivation occurs regardless of actual reward outcome. Even when betting led to a 75% loss rate, depleted participants bet more fake money than non-depleted participants. The measure of behavioural approach system (BAS) activation involves three components: reward responsiveness, drive to seek rewards, and fun seeking (Carver & White, 1994). BAS scores predicted betting behaviour and task enjoyment (Schmeichel, Harmon-Jones, & Harmon-Jones, 2010). Thus, it appears that self-control depletion motivates us to seek excitement and rewards through risky choices, which in turn lead to a sense of enjoyment and vitality.

In contrast, Unger and Stahlberg (2011) argue that self-control depletion causes a state of risk aversion. Participants who engaged in a depleting activity subsequently made less risky investment decisions than did participants whose self-control was not depleted (Unger & Stahlberg, 2011). The authors suggest that risk aversion may be a form of active management of self-control, such that people avoid risky situations when their self-control is depleted because they are concerned about lack of resources to deal with the negative emotional consequences of risk. Risk aversion may also occur because depleted self-control leads to more pessimistic assessments of risk and reward (Unger & Stahlberg, 2011). Thus, not all risks are attractive under conditions of depletion. In this research, the investment decision was framed as a risk requiring personal responsibility and careful deliberation. Thus, it may be that only “fun” risks that induce vitality are more likely under conditions of depleted self-control strength.

Of importance, to my knowledge, no published quantitative research has yet examined the effects of risky behaviour on subsequent self-control and vitality. However, some qualitative
research evidence highlights the pleasures and rewards of risk-taking. For example, based on interviews with Australian adults, Lupton and Tulloch (2002) concluded that voluntary risk taking is associated with discursive themes of self-improvement, emotional engagement, and control. Lyng (1990, p. 880) discusses the “hyperreality” or exhilaration of those risky behaviours that allow us to explore the line between life and death. Furthermore, even small risks, such as abandoning one’s diet for an extra piece of chocolate or making an impulsive purchase at the grocery store, may provide a replenishing and revitalizing experience. Thus, it may be that indulging actually restores people’s self-control, such that the increase in vitality associated with autonomously chosen risky indulgences replenishes or maintains self-control strength.

Vitality has been proposed as the experiential form of self-control strength: “vitality represents energy that one can harness or regulate for purposive actions” (Ryan & Deci, 2008, p. 703). It appears that a feeling of vitality may not only attenuate the effects of self-control depletion, vitality may actually replenish self-control. Thus, people may seek out activities that make them feel vital (i.e., autonomously chosen activities that increase their subjective vitality) in order to replenish self-control depleted by daily stressors. For example, people whose self-control has been depleted may choose to spend time with friends instead of studying. People who enjoy gambling may seek out opportunities to gamble when they feel that their self-control has been depleted in order to gain a sense of replenishment from their favourite risky behaviour.

Indeed, research shows that the act of gambling may temporarily enhance self-control strength in problem gamblers. On a persistence measure of self-control, Newby-Clark and Brown (2008) found that problem gamblers showed greater self-control performance after gambling than after a simple word generation task. Specifically, after the word generation task, problem gamblers showed lower self-control performance (as assessed by persistence on an unsolvable tracing task) than did non-problem gamblers. In contrast, this effect did not occur if the problem gamblers engaged in gambling. Similarly, Newby-Clark and Bergen (2011) found that after a series of depleting tasks, problem gamblers showed less subsequent self-control than did non-problem gamblers. This was not surprising, given that problem gamblers have chronic self-control strength deficits, as compared to non-problem gamblers (Baumeister et al., 1994; Martins et al., 2004). However, problem gamblers who played slot machines for 15 minutes after the depleting activities did not show signs of depleted self-control relative to non-problem gamblers.
It appears that for problem gamblers, playing slot machines replenished self-control strength. In this research, winning was unrelated to later persistence, suggesting that problem gamblers found the act of gambling itself enjoyable and revitalizing. Although vitality was not measured directly in this research, evidence from this study suggests that gambling replenishes self-control in problem gamblers.

Which aspects of gambling replenish depleted self-control? Most risky and impulsive behaviours are associated with activation of cognitive reward centres (Chau, Roth, & Green, 2004; Loewenstein, 1996). If self-control depletion sensitizes us to rewards, and makes indulging in risky behaviour more likely, then what is the benefit for us? That is, do people engage heedlessly in risky behaviour, or are they motivated to engage in risky behaviour to restore their depleted self-control strength? It may be that activation of reward circuitry increases feelings of energy, or subjective vitality, which in turn restores or replenishes self-control strength. However, not any risk will do. The vitality and self-control strength gained from risky indulgences may, in turn, depend on the extent to which the risky behaviour was autonomously chosen.

Hypothoses

Does voluntary risk provide a sense of vitality that can replenish depleted self-control? Do people expect or plan to engage in voluntary risk when their self-control has been depleted? How do people assign meaning and motivation to behaviours following self-control depletion? When people’s self-control has been depleted, they may seek risky behaviours because they are looking for an inherently rewarding situation, a situation that will increase their sense of vitality and replenish their self-control. Voluntarily engaging in risky behaviours may be a strategy for actively managing self-control resources. However, is this a conscious strategy?

Study 1 investigated the research question of whether risky behaviour after self-control depletion leads to increased vitality and self-control strength, and whether risk autonomy moderates this relationship. Specifically, I tested the following hypotheses:

H1: Self-control depletion will increase degree of autonomous risk.

H2: Autonomous risk, but not forced risk, will replenish depleted self-control.

H3: Subjective vitality will mediate the relationship between degree of autonomous risk and subsequent self-control strength.
In Study 2, I stepped back from the specific mechanisms of self-control depletion and replenishment to investigate the broader question of how self-control operates in people’s lives. If depletion only occurs to the extent that people believe that resources are limited (Job et al., 2010), then understanding similarities and differences in personal theories of self-control is essential to understanding self-control as a meaningful construct. I used semi-structured interviews to examine people’s perceptions of self-control and self-control failure.

Interpretation of the results of Study 1 will be facilitated by an exploration of people’s experiences surrounding self-control depletion, risk, autonomy, and vitality. These factors served as sensitizing considerations in my approach to thematic analysis (Braun & Clarke, 2006; Charmaz, 2003). However, I did not develop a priori research questions for Study 2. Instead, in accordance with the suggestions of Braun and Clarke (2006), I developed my research questions based on major themes I identified in the data through repeated and active reading.

Specifically, in Study 2, I used thematic analysis of qualitative interviews to investigate the following research questions:

RQ1: How do people perceive self-control?
RQ2: What are the anticipated outcomes of self-control and self-control failure?
RQ3: What are internal attributions for self-control and self-control failure?
RQ4: What are external attributions for self-control and self-control failure?
RQ5: How does self-control operate in a social context?
RQ6: How do people replenish, regain, and maintain self-control?
Chapter III: Study 1 Methods

This mixed methods triangulation design consists of two distinct studies: quantitative and qualitative (Creswell, Plano Clark, Gutmann, & Hanson, 2003). Specifically, quantitative and qualitative data collection and analysis were separate; the data were integrated at the stage of interpretation (Creswell & Clark, 2007; Creswell et al., 2003). The rationale for this approach is that the quantitative data provides an understanding of the relationships among self-control depletion, risk autonomy, and vitality. The qualitative data complements these results by exploring participants’ explanations and interpretations of behaviour related to self-control and self-control failure.

Study 1 Overview

Study 1 examined whether risky behaviour after self-control depletion led to increased vitality and self-control strength, and whether the ability to autonomously choose risks moderated this relationship. This study used a 2 X 2 design, where self-control depletion and risk autonomy (i.e., opportunity to choose risky behaviour) were manipulated, and subsequent self-control strength was measured. Participants were 152 undergraduate students from the psychology participant pool at the University of Guelph (see results below for demographic information). Assuming an alpha level of $p = .05$ and medium to large effect sizes, this sample size should have allowed a high likelihood (.85) of detecting my hypothesized effects.

Informed Consent and Demographics

The study was described on the undergraduate participant pool website as “a study of the dynamics of mood, self-control, and vitality.” Participants were blind to the hypotheses of the study. Upon entering the lab, all participants were asked to provide informed consent. Participants were also asked to provide basic demographic information (age and gender) on a separate questionnaire.

Vitality and Mood

Subjective vitality and mood were assessed before the self-control baseline, risk-taking, and final self-control strength components of the experiment (see Appendix A). Instructions for both scales emphasized that participants should indicate their vitality or mood “right now.” Meta-analysis shows that completing questionnaires between self-control tasks tends to increase average effect sizes, as compared to studies with no interim period (Hagger et al., 2010).
Subjective vitality was assessed using a six-item version of the Subjective Vitality Scale (SVS; Ryan & Frederick, 1997; see Appendix B). The six-item SVS is a self-report scale with good internal consistency and construct validity (Bostic, Rubio, & Hood, 2000; Ryan & Frederick, 1997). Internal consistency for the SVS was excellent at Time 1 (\(\alpha = .88\)), Time 2 (\(\alpha = .93\)), and Time 3 (\(\alpha = .91\)). Mean vitality scores for the three assessment times were created by averaging the six SVS items.

Mood was assessed using the Brief Mood Introspection Scale (BMIS; Mayer & Gaschke, 1988; see Appendix C). The BMIS assesses mood valence and arousal using participants’ ratings of 16 adjectives on a Meddis-type scale ranging from XXX (definitely do not feel) to VVV (definitely feel). The mood valence factor (pleasant vs. unpleasant) was created by summing the responses for Active, Calm, Caring, Content, Happy, Lively, Loving, and Peppy with the reverse scored responses for Drowsy, Fed up, Gloomy, Grouchy, Jittery, Nervous, Sad, and Tired. The arousal factor (aroused vs. calm) was created by summing the responses for Active, Caring, Fed up, Gloomy, Jittery, Lively, Loving, Nervous, Peppy, and Sad with the reverse scored responses for Calm and Tired.

For the mood subscale of the BMIS, internal consistency was good at Time 1 (after reversals, \(\alpha = .80\)), Time 2 (after reversals, \(\alpha = .84\)), and Time 3 (after reversals, \(\alpha = .83\)). The arousal scale of the BMIS typically shows lower reliability than the mood subscale (Mayer & Gaschke, 1988). Indeed, the internal consistency of the arousal subscale was relatively low at Time 1 (after reversals, \(\alpha = .57\)), Time 2 (after reversals, \(\alpha = .59\)), and Time 3 (after reversals, \(\alpha = .53\)). Examination of item-total statistics across the three assessment times did not point to individual problematic items, and the arousal scale was retained intact in subsequent analyses. However, the lack of reliability of the arousal scale is a limitation of this study.

**Self-Control Strength**

Self-control strength was operationalized as handgrip persistence time. Specifically, participants were asked to squeeze closed a spring-loaded handgrip exerciser for as long as possible using their dominant hand (until exhaustion). In order to precisely measure handgrip persistence time, an eraser was inserted between the handles of the handgrip, and handgrip persistence was timed until the eraser dropped. Individuals with more self-control strength should have been able to override the desire to stop squeezing the handgrip for longer than those
with depleted self-control strength. Squeezing a handgrip is a well-established measure of self-control strength (e.g., Muraven, 2008; Muraven et al., 1998). A meta-analysis by Hagger and colleagues (2010) showed that handgrip persistence as a dependent self-control task results in medium to large effect sizes.

In order to control for muscular strength, a baseline measurement of handgrip persistence was carried out before the depletion manipulation. Final handgrip persistence time was assessed after the risk manipulation, as the main dependent measure of self-control.

**Self-Control Depletion**

Self-control was depleted by means of a thought suppression technique. Specifically, in the depletion condition participants were instructed to list their thoughts on a piece of paper for 10 minutes while suppressing all thoughts of a white bear (indicating on the paper every time their thoughts turned to white bears). Thought suppression is a paradoxically difficult cognitive task (Wegner, Schneider, Carter, & White, 1987), and is a commonly used means of depleting self-control strength (e.g., Baumeister et al., 1998; Muraven et al., 1998; Muraven et al., 2003). Meta-analysis shows that thought suppression as a depleting task results in medium to large effect sizes (Hagger et al., 2010). In the no-depletion condition, participants were simply asked to list their thoughts for 10 minutes.

**Degree of Risk**

Risk-taking (i.e., degree of risk) was operationalized as performance on the automatic BART (Centre for Addictions, Personality, and Emotion Research, 2010). The BART is a well-validated lab behavioural measure of risk-taking (Lejuez et al., 2002; Lejuez, Aklin, Zvolensky, & Pedulla, 2003). BART performance predicts self-reported risky behaviours and the risk-related constructs of impulsiveness and sensation-seeking (Hopko, Lejuez, Daughters, Aklin, Osborne, Simmons, et al., 2006; Lejuez et al., 2002; Lejuez et al., 2003). As opposed to the original manual version of the BART, the automatic version of the BART provides an unbiased behavioural index of sequential risk (Pleskac, Wallsten, Wang, & Lejuez, 2008).

The automatic BART is a computer simulation of pumping up a balloon. Each time the balloon is pumped, there is a chance of the balloon exploding. The probability of the balloon exploding increases with each pump. Thus, the more times a participant pumps the balloon, the greater the risk that their balloon will explode. Participants were informed that they could choose
between 1 and 128 pumps, but that the ideal number of pumps is 64 (See Appendix D1 for instructions). The automatic version of the BART allowed participants to type in the number of times they wish to pump the balloon (target pumps) at the beginning of each trial. Participants earned a small reward ($0.01) for each target pump, but if the balloon exploded, they lost the money they would have earned on that trial. There were 30 trials in total. After each trial, participants were shown the explosion point for the last balloon, their total score on the last balloon, and the number of remaining balloons (see Appendix E). After the last trial, participants were shown a congratulatory screen with their total earnings highlighted (see Appendix F). In addition to course credit, participants received their cash earnings from the BART.

As suggested by Lejuez et al. (2002; 2003), the adjusted average number of balloon pumps was used as the main criterion of risk. Specifically, this adjusted value is the “average number of pumps excluding balloons that exploded (i.e., the number of pumps on each balloon prior to collecting money)” (Lejuez et al., 2003, p. 477). Without adjustment, the average of balloon pumps is “constrained on balloons that exploded, thereby limiting between participant variability on the absolute averages” (Lejuez et al., 2003, p. 477). In practice, the variances of adjusted and unadjusted average pumps were nearly identical in this sample. The adjusted average number of pumps ranged from 15 to 73 ($s^2 = 93.99$) and the unadjusted average number of pumps ranged from 17 to 78 ($s^2 = 93.74$).

**Risk Autonomy**

Participants in the autonomous risk condition completed 30 trials on the automatic BART. Participants in the forced risk condition also completed 30 trials on the automatic BART, but their responses were pre-determined. Specifically, the responses of participants in the forced-risk condition were yoked to the responses of the previous participant in the voluntary-risk condition. Based on the methods of Nix and colleagues (1999), yoked participants were told, “There is an assigned limit to each balloon trial based on how someone else chose to pump up the balloon. The task here is to follow my instructions exactly until all the balloon trials have been completed.” The experimenter then read a list of target pumps to enter for each balloon trial to the participant. The yoking paradigm should have led to a more controlled motivation for participants in the forced-risk condition (e.g., Nix et al., 1999).

**Intrinsic Motivation**
If the risk autonomy manipulation was successful, participants should have felt more intrinsic motivation and autonomy over their choices in the voluntary risk condition than in the forced risk condition. Therefore, I assessed intrinsic motivation and autonomy as a manipulation check using the interest/enjoyment and perceived choice subscales of the standard 22-item version of the Intrinsic Motivation Inventory (IMI; Ryan, 1982; Ryan et al., 1991; see Appendix G). I expected that participants would enjoy the voluntary risk condition more than the forced risk condition and would perceive more choice in the voluntary risk condition than in the forced (yoked) condition. Both the interest/enjoyment (after reversals, $\alpha = .95$) and perceived choice (after reversals, $\alpha = .82$) subscales showed good internal consistency for the sample.
Chapter IV: Study 1 Results

The following chapter begins with an account of exploratory data analysis. Specifically, I review my decisions regarding data selection and data cleanup, provide descriptive demographics statistics of the sample, and explain tests of normality, the experimental manipulation and randomization. After these preliminary analyses, I report on my primary analyses, stemming from my hypotheses. Next, I report on subsequent analyses and follow-up analyses that clarify my results.

Demographics and Preliminary Analyses

Missing data. Of the 152 participants, 6 had missing data. Given the low proportion of missing cases and the fact that 2 of the 6 cases contained missing data due to experimenter error, the data was assumed to be missing completely at random (MCAR)\(^1\). Participants with missing data were removed listwise from the dataset; when data are MCAR, listwise deletion leads to unbiased parameter estimates (Howell, 2009). Less than 5% of the dataset was missing, so listwise deletion had a negligible effect on analytic power.

Demographics. Of the 146 participants with complete data, 127 were female (87%). Participants ranged in age from 17 to 24 years ($M = 18.48, SD = 1.09$). Ethnic background was collected using an open-ended item. The majority of participants self-identified their ethnic background as being Caucasian or European ($n = 94, 64\%$). Another 17% self-identified as “Canadian” ($n = 25$), 7% as Asian ($n = 10$), 5% as Black, African, or Caribbean ($n = 7$), 3% as mixed heritage ($n = 5$), and 3% as South Asian ($n = 5$).

Data cleanup. Exploratory data analysis was carried out on all variables. Except where otherwise noted, the distribution of all variables was adequately normal. Given the relatively robust sample sizes (i.e., $n \geq 30$ per condition), violation of the assumption of normality was not a critical concern. Where risk, vitality, or self-control scores were potential outliers (i.e., more

\(^{1}\) The number of missing cases was too low to check for relations among the missing items and item content.
than 3SD from the mean), analyses were run with and without outliers. In all cases, the pattern of results was the same with and without outliers, so results from the larger data set are reported.

Handgrip persistence times. At baseline, participants persisted on the handgrip task for \( M = 47.62 \) seconds (\( SD = 50.57 \)). However, the distribution of baseline handgrip times was positively skewed and severely leptokurtic; the median persistence time was only 30.86 seconds and the 25\textsuperscript{th} percentile was 18.39 seconds. The distribution of final handgrip times had similar deviations from normality (\( M = 41.43, SD = 32.57, \) median = 32.38, 25\textsuperscript{th} percentile = 19.10). In order to normalize the grip time data, a log 10 transformation was applied to baseline and final handgrip persistence times. After transformation, both handgrip time distributions were approximately normally distributed. All subsequent analyses use transformed handgrip times.

Gender differences in grip persistence. Men had more physical strength than women. An independent samples t-test showed that men persisted for significantly longer on the handgrip task than did women, both at baseline, \( t(144) = 4.13, p < .001, \) and at final assessment, \( t(144) = 2.89, p = .004. \) However, the distribution of genders did not significantly differ across conditions, \( \chi^2(3) = 2.57, p = .46, \) and so gender was excluded from all subsequent analyses.

Randomization check. To check that randomization to conditions was successful, I carried out a Multivariate Analysis of Variance (MANOVA) with baseline handgrip persistence, mood, arousal, and vitality as the dependent variables and risk autonomy and depletion status as the between-groups factors. There was no significant multivariate main effect for risk autonomy condition, Wilk’s \( \lambda = .97, F(4,139) = 0.96, p = .43, \gamma^2 = .03, \) depletion condition, Wilk’s \( \lambda = .97, F(4,139) = 1.04, p = .39, \gamma^2 = .03, \) and no significant interaction between the two conditions, Wilk’s \( \lambda = .97, F(4,139) = 1.03, p = .39, \gamma^2 = .03. \) None of the dependent measures showed significant univariate effects. Thus, it appears that randomization to conditions was successful: there is no evidence that participants’ mood, arousal, or vitality, or self-control strength varied at baseline across experimental conditions.

\(^2\) There were two cases of risk score more than 3SD below the mean (one voluntary, one yoked), and one case of handgrip persistence more than 3SD below the mean. Effect sizes stayed the same or slightly improved without these cases, but the pattern of results did not change.
Depletion manipulation check. In order to test the success of the depletion manipulation, I conducted a mixed model Analysis of Variance (ANOVA) with baseline and final self-control strength as the within-groups factor and depletion and risk autonomy status as the between groups factor. I selected a mixed model ANOVA in order to examine whether the change in handgrip persistence over time differed across depletion groups (i.e., a depletion status X time interaction). The main effects for time, risk autonomy, and the three-way interaction between time, risk autonomy, and depletion, were not significant (all $F$’s < 1.3). However, the interaction between time and depletion status was marginally significant, $F(1,142) = 3.29, p = .07, \eta^2 = .02$. A series of paired-samples t-tests indicated that in the control condition, there was no significant change in self-control strength from baseline ($M = 1.44, SD = .47$) to final assessment ($M = 1.46, SD = .45$), $t(73) = 0.44, p = .66$. However, for those in the depletion condition, self-control strength was significantly higher at baseline ($M = 1.53, SD = .43$) than at final assessment ($M = 1.45, SD = .42$), $t(71) = 2.36, p = .02$. Thus, it appears that the depletion manipulation was successful.

Risk Autonomy Manipulation Check. In order to see if the risk autonomy manipulation was successful, I carried out a multivariate ANOVA with the interest and enjoyment and perceived choice subscales of the IMI as the dependent variables and risk autonomy condition as the between-groups factor. As expected, there was a multivariate main effect for autonomy condition, Wilk’s $\lambda = .85, F(2,143) = 12.98, p < .001, \eta^2 = .15$. Descriptive statistics are presented in Table 1. As expected, interest/enjoyment, $F(1,144) = 12.30, p = .001, \eta^2 = .08$, and perceived choice, $F(1,144) = 23.37, p < .001, \eta^2 = .14$, were higher in the voluntary risk conditions than in the forced risk conditions. Thus, after the yoked risk task, participants felt less intrinsic motivation and lower autonomy. These findings indicate that the risk autonomy manipulation was successful.
Table 1

Descriptive Statistics for Interest/Enjoyment and Perceived Choice Subscales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Forced Risk</th>
<th>Voluntary Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Interest/Enjoyment</td>
<td>4.78&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.45</td>
</tr>
<tr>
<td>Perceived Choice</td>
<td>5.06&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.29</td>
</tr>
</tbody>
</table>

*Within each row, means with the same subscript differ significantly at \( p \leq .001 \)

Primary Analyses: Testing Planned Hypotheses

H1: Does depleted self-control increase degree of voluntary risk? In the voluntary-risk condition, I expected that participants in the self-control depletion condition would make riskier choices on the BART (i.e., more balloon pumps) than participants who did not have depleted self-control. Note that the main effect of depletion could not be determined in the forced-risk condition, as the balloon pumps were pre-determined (i.e., yoked). All analyses in this section are reported only for participants in the voluntary risk condition.

Descriptive statistics for the adjusted average number of balloon pumps across depletion conditions are shown in Table 2 (i.e., excluding pumps on balloons that exploded). Contrary to my expectations, an independent samples t-test did not show any evidence of differences in balloon pumps based on depletion condition, \( t(69) = .53, p = .60 \). There is no evidence that self-control depletion affected degree of risky behaviour. Assuming a medium to large effect size, the current sample \( (n = 34 \text{ and } n = 37\) in the depletion and no-depletion conditions, respectively) should have had around a 90% chance of detecting an effect if one existed (Faul, Erdfelder, Lang, & Buchner, 2006). Therefore, these results suggest that either: (1) the effect of self-control depletion on risky behaviour was too small to detect in the current sample, (2) self-control depletion does not influence general risky behaviour, or (3) the depletion manipulation was not sufficient to cause risky behaviour. However, as will be explained in the following section, examination of final self-control scores across experimental conditions suggests that the depletion manipulation was successful.
**Table 2**

*Descriptive Statistics for Adjusted Average Number of Balloon Pumps*

<table>
<thead>
<tr>
<th></th>
<th>No-Depletion Condition</th>
<th>Depletion Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(n = 37)</em></td>
<td><em>(n = 34)</em></td>
<td></td>
</tr>
<tr>
<td>Adjusted Average Pumps</td>
<td><em>M = 51.95 SD = 11.11</em></td>
<td><em>M = 53.19 SD = 8.41</em></td>
</tr>
</tbody>
</table>

**H2: Does voluntary risk replenish depleted self-control?** After controlling for baseline handgrip persistence, I expected that depleted participants in the forced-risk condition would squeeze the handgrip for less time than non-depleted participants in the forced-risk condition and depleted participants in the voluntary-risk condition. However, I expected that for participants in the voluntary risk condition, handgrip persistence for depleted participants would not differ from that of non-depleted participants.

To test these predictions, I carried out a 2 (depletion condition) x 2 (risk autonomy condition) Analysis of Covariance (ANCOVA) with baseline handgrip persistence as the covariate and final handgrip persistence as the dependent measure. The covariate of baseline handgrip persistence significantly accounted for 50% of the variability in final handgrip persistence, \( F(1,141) = 159.87, p < .001, \gamma^2 = .50 \). There was no main effect for depletion condition, \( F(1,141) = 2.06, p = .15, \gamma^2 = .01 \), or risk autonomy condition, \( F(1,141) = 1.12, p = .29, \gamma^2 = .003 \).

As expected, there was a significant interaction between risk and autonomy conditions, \( F(1,141) = 4.36, p = .04, \gamma^2 = .01 \). However, following up with two one-way ANCOVAs showed that, contrary to my predictions, there was no evidence of any difference in handgrip persistence between depleted and non-depleted participants in the forced risk condition, \( F(1,72) = .14, p = .71, \gamma^2 = .001 \). Moreover, in the voluntary risk condition, depleted participants persisted for significantly less time on the final handgrip task than did non-depleted participants, \( F(1,68) = 6.45, p = .01, \gamma^2 = .05 \). Marginal means and standard deviations (after controlling for baseline handgrip persistence) are presented in Table 3.
Table 3

*Marginal Mean Final Handgrip Persistence (Log10 Transformed) by Experimental Condition*

<table>
<thead>
<tr>
<th>Final Handgrip Persistence</th>
<th>Forced Risk</th>
<th></th>
<th>Voluntary Risk</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Depleted</td>
<td>1.44</td>
<td>.40</td>
<td>1.39&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.44</td>
</tr>
<tr>
<td>Not Depleted</td>
<td>1.41&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.49</td>
<td>1.56&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>.35</td>
</tr>
</tbody>
</table>

*Marginal means with the same subscript differ significantly at \( p < .05 \); Covariate entered at 1.48.

Rather than voluntary risk being replenishing, these results suggest that forced risk is a depleting experience. Participants in the control (no depletion) condition whose choices on the BART were yoked to those of previous participants persisted for significantly less time on the final handgrip task than did participants in the voluntary risk condition, \( F(1,71) = 4.81, \ p = .03, \ \gamma^2 = .03 \). In contrast, for participants who were depleted, there was no significant difference in handgrip persistence based on risk autonomy condition, \( F(1,69) = .52, \ p = .47, \ \gamma^2 = .003 \). Furthermore, an ANCOVA with baseline handgrip as the covariate and final handgrip as the dependent measure showed that participants in the non-depleted, voluntary-risk condition persisted for longer on the final handgrip task than did participants in the three other conditions, \( F(1,143) = 7.11, \ p = .009, \ \gamma^2 = .02 \).

Muraven and colleagues (2008, p. 577) found “that participants who had to resist the temptation of cookies and who were given controlling instructions made more errors than participants in the other three conditions.” In this case, autonomy support during the depleting task (resisting cookies) rendered it no longer depleting.

In my research, I found that non-depleted participants in the autonomy condition performed better on the handgrip task than did participants in the other three conditions. Of importance, in my research the autonomy support (or lack thereof) occurred after the depletion manipulation. Participants who were already depleted did not appear to be further depleted by engaging in a controlled activity (forced risk task). However, participants who were not yet depleted found engaging in a subsequent controlled activity to be depleting. These findings
suggest that after the initial depletion, participants may have started managing their self-control strength or increasing their self-awareness in order to mitigate the possibility of further self-control depletion.

Thus, my findings suggest that lack of autonomy can be depleting in and of itself, but does not appear to increase the effects of previous self-control depletion. To follow-up on Muraven and colleague’s (2008) finding that autonomy support reduces the effects of concurrent self-control depletion, I found no evidence that prior autonomy support reduces the effects of depletion (i.e., no effect of replenishment).

Can the effects of risk autonomy on depletion be attributed to mood or arousal? In order to rule out the possibility that the depleting effects of forced risk reported above are simply due to differences in mood or arousal across conditions, I conducted a multivariate ANOVA with Time 3 mood and arousal as the dependent measures and depletion and risk autonomy condition as the between-groups factors. There was no significant multivariate main effect for depletion condition, Wilk’s $\lambda = .99, F(2,141) = 0.77, p = .47, \gamma^2 = .01$, and no significant interaction between the depletion and risk autonomy conditions, Wilk’s $\lambda = .99, F(2,141) = 0.68, p = .51, \gamma^2 = .01$. The multivariate main effect for depletion condition was marginally significant, Wilk’s $\lambda = .96, F(2,141) = 2.84, p = .06, \gamma^2 = .04$. Examination of univariate ANOVAs for mood and arousal indicated that although mood did not differ significantly across depletion conditions, $F(1,142) = .34, p = .56, \gamma^2 = .002$, arousal was significantly higher in the depletion condition ($M = 42.74, SD = 6.75$) than in the control condition ($M = 40.25, SD = 6.62$), $F(1,142) = 5.17, p = .02, \gamma^2 = .03$. This finding is unexpected: one would expect depletion to reduce arousal, if anything. However, these results do not suggest that the depleting effect of forced choice on self-control is due to changes in mood or arousal.

H3: Does vitality mediate between voluntary risk and self-control? For depleted participants in the voluntary risk condition, I expected that subjective vitality would mediate the relationship between degree of voluntary risk (i.e., adjusted average number of balloon pumps on the BART) and later self-control strength (i.e., final handgrip persistence). To see if vitality mediated the relationship between voluntary risk and final self-control strength, I used the Preacher-Hayes (2004; 2008) bootstrapped test of indirect effects with baseline self-control strength entered as a covariate. As shown in Table 4, there was no evidence of a significant
relationship among any of the variables except for between the baseline and final measures of self-control strength. Due to this relationship between the covariate and the dependent variable, the overall model was significant, $R^2 = .48$, $F(3,67) = 20.84$, $p < .001$. However, contrary to what I predicted, subjective vitality did not mediate the relationship between voluntary risk and later self-control.

Table 4

Does Vitality Mediate Between Degree of Risk and Final Self-Control Strength?

<table>
<thead>
<tr>
<th>Path</th>
<th>Coefficient</th>
<th>SE</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of risk (IV) to Mediator</td>
<td>Time 3 Vitality</td>
<td>-0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Direct Effect of Mediator on Final Self-Control (DV)</td>
<td>Time 3 Vitality</td>
<td>-0.02</td>
<td>0.04</td>
</tr>
<tr>
<td>Total Effect of IV on DV</td>
<td>Time 3 Vitality</td>
<td>-0.001</td>
<td>0.004</td>
</tr>
<tr>
<td>Direct Effect of IV on DV</td>
<td>Time 3 Vitality</td>
<td>-0.001</td>
<td>0.004</td>
</tr>
<tr>
<td>Partial effect of Covariate (Baseline Self-Control) on DV</td>
<td>Time 3 Vitality</td>
<td>0.67</td>
<td>0.09</td>
</tr>
</tbody>
</table>

***$p < .001$ (two-tailed)

Based on the above analyses, it was evident that the relation between self-control, risk, and vitality is not what I hypothesized. Contrary to my expectations, I did not find that self-control depletion led to risky behaviour. Instead of autonomous risk replenishing depleted self-control, I found that forced risk was depleting. Furthermore, I found no evidence that vitality serves a mediating role between risky behaviour and self-control. Indeed, contrary to predictions from the literature, vitality does not appear to be acting as a barometer of self-control. In order to disentangle the relation between self-control and vitality, I conducted a series of secondary analyses. Specifically, I tested whether vitality acts as a barometer of self-control strength, how vitality and affect changed over the course of the study, and whether perceptions of autonomy mediate changes in vitality. Finally, I investigated the factor structure of vitality, mood, and arousal.
Secondary Analyses: Disentangling Vitality, Self-Control, and Mood

Is vitality a barometer of self-control strength? If vitality is a barometer of available self-control strength, then changes in vitality should mediate changes in self-control strength. As shown in Table 5, baseline handgrip persistence is related to Time 2 and Time 3 vitality, and final handgrip persistence is related to Time 3 vitality.

Table 5
Intercorrelations Among Measures Self-Control Strength and Vitality

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Baseline handgrip</td>
<td></td>
<td>.73***</td>
<td>.10</td>
<td>.19*</td>
<td>.18*</td>
</tr>
<tr>
<td>persistence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Final handgrip</td>
<td></td>
<td></td>
<td>.09</td>
<td>.15</td>
<td>.17*</td>
</tr>
<tr>
<td>persistence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Time 1 Vitality</td>
<td></td>
<td></td>
<td></td>
<td>.67***</td>
<td>.71***</td>
</tr>
<tr>
<td>4. Time 2 Vitality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.75***</td>
</tr>
<tr>
<td>5. Time 3 Vitality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***p < .001 (two-tailed)
** p < .01 (two-tailed)
* p < .05 (two-tailed)

To see if vitality mediated the relationship between baseline and final self-control strength, I used the Preacher-Hayes (2004; 2008) bootstrapped test of indirect effects. With baseline self-control strength as the independent variable, final self-control strength as the dependent variable, I found no evidence that vitality at Time 2 or Time 3 mediated the relation between baseline and final self-control strength. As shown in Table 6, baseline self-control predicted Time 2 and 3 vitality and final self-control. Although the overall model was significant, $R^2 = .54$, $F(3,142) = 55.36, p < .001$, after controlling for baseline self-control, Time 2 and 3 vitality did not significantly predict final self-control. Furthermore, the reduced effects of baseline self-control on final self-control after controlling for Time 2 (95% CI [-.04, .02]) and Time 3 (95% CI [-.01, .07]) vitality were not significantly different from zero.
Table 6

Does Vitality Mediate Between Baseline and Final Self-Control Strength?

<table>
<thead>
<tr>
<th>Path</th>
<th>Coefficient</th>
<th>SE</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Self-Control (IV) to Mediators</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 2 Vitality</td>
<td>0.52</td>
<td>0.23</td>
<td>2.30*</td>
</tr>
<tr>
<td>Time 3 Vitality</td>
<td>0.46</td>
<td>0.21</td>
<td>2.23*</td>
</tr>
<tr>
<td>Direct Effect of Mediator on Final Self-Control (DV)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 2 Vitality</td>
<td>-0.01</td>
<td>0.03</td>
<td>-0.41</td>
</tr>
<tr>
<td>Time 3 Vitality</td>
<td>0.02</td>
<td>0.03</td>
<td>0.79</td>
</tr>
<tr>
<td>Total Effect of IV on DV</td>
<td>0.70</td>
<td>0.05</td>
<td>12.92***</td>
</tr>
<tr>
<td>Direct Effect of IV on DV</td>
<td>0.69</td>
<td>0.06</td>
<td>12.50***</td>
</tr>
</tbody>
</table>

***p < .001 (two-tailed)
* p < .05 (two-tailed)

It appears that participants with higher self-control may be better able to maintain vitality through depleting situations. It may also be that higher previous vitality may reduce the depleting effects of forced risk. However, vitality does not appear to play a meditational role maintaining self-control strength over time. At best, vitality is an unreliable predictor of self-control strength.

**How did vitality, mood, and arousal change over time?** To better understand the role of vitality in this research, I examined how mood, arousal, and vitality changed over the course of the experiment using a multivariate mixed model ANOVA. In this analysis, time was the repeated factor, depletion and risk condition were the between group factors, and mood, arousal, and vitality were the dependent measures. The Greenhouse-Geisser correction to degrees of freedom was used where sphericity could not be assumed. Although time showed a significant multivariate effect, Wilk’s $\lambda = .41, F(6,137) = 32.36, p < .001, \eta^2 = .59$, none of the interactions between time and the between groups factors were significant (all $F$’s < 1).

Following up with univariate repeated measures ANOVAs showed that vitality, $F(2,284) = 62.99, p < .001, \eta^2 = .31$, and mood, $F(2,84) = 68.60, p < .001, \eta^2 = .33$, significantly changed over time. In contrast, changes in arousal over time were only marginally significant, $F(2, 254) = 2.80, p = .07, \eta^2 = .02$, with a very small effect size. As shown in Table 7, pairwise comparisons
indicated that vitality and mood decreased from baseline to after the depletion task ($p$’s < .05), and then increased after the BART to levels higher than baseline (all $p$’s < .001). Thus, it appears that regardless of experimental condition, vitality and mood decreased after the thought listing task (i.e., the depletion manipulation) and rebounded after getting paid. It appears that participants feel better when they’re making money than when they’re working for free.

Table 7
Descriptive Statistics for Vitality, Mood, and Arousal, Over Time

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Vitality</th>
<th>Mood</th>
<th>Arousal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1</td>
<td>4.20a</td>
<td>79.16b</td>
<td>40.70</td>
</tr>
<tr>
<td>Time 2</td>
<td>4.00a</td>
<td>77.42b</td>
<td>40.37</td>
</tr>
<tr>
<td>Time 3</td>
<td>4.79a</td>
<td>85.63b</td>
<td>41.48</td>
</tr>
</tbody>
</table>

*Within each column, means with the same subscript differ significantly at $p < .05$

Of interest, participants’ rebound in mood and vitality after the BART task did not appear to depend on the amount of money they actually earned. There was no significant relation between total earnings and vitality, $r(144) = .10, p = .23$, self-control strength, $r(144) = .06, p = .44$, or mood, $r(144) = .04, p = .67$. There was a marginally significant relation between earnings and arousal, $r(144) = .16, p = .06$, such that earning more money on the BART was associated with greater arousal. However, given the marginal level of significance here, and the fact that the arousal subscale of the BMIS did not show good internal consistency, these results should be interpreted with caution.

Did intrinsic motivation and perceived autonomy mediate changes in vitality, mood, or arousal? Previous research into SDT shows that intrinsic motivation and autonomy support lead to feelings of vitality (e.g., Muraven et al., 2008; Nix et al., 1999). Thus, feelings of intrinsic motivation (i.e., interest/enjoyment) and autonomy (i.e., perceived choice) should at least partially mediate changes in vitality. Furthermore, one of the main distinctions between positive mood and vitality is that changes in intrinsic motivation and autonomy tend to affect vitality, but not mood (Muraven et al., 2008; Nix et al., 1999).
As shown in Table 8, although there was no significant relations between perceived choice and vitality, interest/enjoyment and vitality were related such that participants who enjoyed the BART activity reported more vitality both before and after the BART activity (i.e., at Time 1, Time 2, and Time 3).

Table 8

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Time 1 Vitality</td>
<td>-</td>
<td>.67***</td>
<td>.71***</td>
<td>.28**</td>
<td>.09</td>
</tr>
<tr>
<td>2. Time 2 Vitality</td>
<td>-</td>
<td>-</td>
<td>.75***</td>
<td>.17*</td>
<td>.07</td>
</tr>
<tr>
<td>3. Time 3 Vitality</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.41***</td>
<td>.16</td>
</tr>
<tr>
<td>4. Interest/enjoyment</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.47***</td>
</tr>
<tr>
<td>5. Perceived choice</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

***p < .001 (two-tailed)

** p < .01 (two-tailed)

* p < .05 (two-tailed)

In order to determine if intrinsic motivation and perceived autonomy mediate the relationship between Time 2 and Time 3 vitality, I used the Preacher-Hayes (2004, 2008) bootstrapped test of indirect effects. The overall model was significant, $R^2 = .64$, $F(3,142) = 84.58$, $p < .001$. With Time 2 vitality as the independent variable, and Time 3 vitality as the dependent variable, I found that interest/enjoyment of the BART task, but not perceived choice, mediated the relation between Time 2 and Time 3 vitality (see Table 9). That is, after controlling for interest/enjoyment, there was a significantly reduced effect of Time 2 vitality on Time 3 (95% CI [0.01, 0.12]). Thus, it appears that part of the influence of Time 2 vitality on Time 3 vitality occurs indirectly, through the mediating variable of interest/enjoyment. Given that the two main measures of intrinsic motivation and perceived autonomy are interest/enjoyment and perceived choice, respectively (Nix et al., 1999; Ryan et al., 1991), it appears that vitality is more related to intrinsic motivation than to perceived autonomy.
Table 9

*Do Interest/Enjoyment and Perceived Choice Mediate Between Time 2 and Time 3 Vitality?*

<table>
<thead>
<tr>
<th>Path</th>
<th>Coefficient</th>
<th>SE</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 2 Vitality (IV) to Mediators</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest/Enjoyment</td>
<td>.19</td>
<td>.09</td>
<td>2.12*</td>
</tr>
<tr>
<td>Perceived Choice</td>
<td>.07</td>
<td>.08</td>
<td>0.81</td>
</tr>
<tr>
<td>Direct Effect of Mediator on Time 3 Vitality (DV)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest/Enjoyment</td>
<td>.26</td>
<td>.05</td>
<td>5.29***</td>
</tr>
<tr>
<td>Perceived Choice</td>
<td>-.03</td>
<td>.05</td>
<td>-0.63</td>
</tr>
<tr>
<td>Total Effect of IV on DV</td>
<td>.68</td>
<td>.05</td>
<td>13.53***</td>
</tr>
<tr>
<td>Direct Effect of IV on DV</td>
<td>.64</td>
<td>.05</td>
<td>13.66***</td>
</tr>
</tbody>
</table>

***p < .001 (two-tailed)  
** p < .01 (two-tailed)  
* p < .05 (two-tailed)

Although vitality was related to interest/enjoyment at all three measurement times, and was not related to perceived choice, the pattern of results for mood was slightly different. As shown in Table 10, Time 3 mood was significantly related to both interest/enjoyment and perceived choice, such that participants who enjoyed the BART more and perceived more choice were subsequently in a better mood. In contrast, mood before the BART had no relation to subsequent intrinsic motivation or perceived autonomy. As shown in Table 11, neither interest/enjoyment nor perceived choice mediated the relation between Time 2 and Time 3 mood. Time 3 arousal was related to interest/enjoyment, \( r(144) = .17, p = .04 \), but not perceived choice, \( r(144) = -.05, p = .53 \).
Table 10

*Intercorrelations Among Measures of Mood, Intrinsic Motivation, and Autonomy*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Time 1 Mood</td>
<td>-</td>
<td>.71***</td>
<td>.72***</td>
<td>.15</td>
<td>.10</td>
</tr>
<tr>
<td>2. Time 2 Mood</td>
<td>-</td>
<td>.77***</td>
<td>.13</td>
<td>.07</td>
<td></td>
</tr>
<tr>
<td>3. Time 3 Mood</td>
<td>-</td>
<td>.40***</td>
<td>.29***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Interest/enjoyment</td>
<td></td>
<td></td>
<td>.47***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Perceived choice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

***p < .001 (two-tailed)

Table 11

*Do Interest/Enjoyment and Perceived Choice Mediate between Time 2 and Time 3 Mood?*

<table>
<thead>
<tr>
<th>Path</th>
<th>Coefficient</th>
<th>SE</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 2 Mood (IV) to Mediators</td>
<td>Interest/Enjoyment</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>Perceived Choice</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>Direct Effect of Mediator on Time 3 Mood (DV)</td>
<td>Interest/Enjoyment</td>
<td>2.14</td>
<td>.46</td>
</tr>
<tr>
<td></td>
<td>Perceived Choice</td>
<td>1.15</td>
<td>.50</td>
</tr>
<tr>
<td>Total Effect of IV on DV</td>
<td></td>
<td>.66</td>
<td>.05</td>
</tr>
<tr>
<td>Direct Effect of IV on DV</td>
<td></td>
<td>.63</td>
<td>.04</td>
</tr>
</tbody>
</table>

***p < .001 (two-tailed)

** p < .01 (two-tailed)

* p < .05 (two-tailed)
Thus, although mood and vitality changed similarly over the course of the experiment, the two variables are somewhat differently related to intrinsic motivation and perceived autonomy. To disentangle the relations among mood, arousal, and vitality, I conducted an exploratory factor analysis.

**What is the factor structure of mood, arousal, and vitality?** As shown in Table 12, although mood and arousal were both correlated with vitality, they were not significantly related to one another.

Table 12
*Intercorrelations Among Measures of Vitality, Mood, and Arousal*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Time 1 Vitality</td>
<td>-</td>
<td>.67***</td>
<td>.71***</td>
<td>.71***</td>
<td>.54***</td>
<td>.59***</td>
<td>.39***</td>
<td>.20*</td>
<td>.25**</td>
</tr>
<tr>
<td>2. Time 2 Vitality</td>
<td>-</td>
<td>.75***</td>
<td>.46***</td>
<td>.70***</td>
<td>.58***</td>
<td>.21*</td>
<td>.37***</td>
<td>.31***</td>
<td></td>
</tr>
<tr>
<td>3. Time 3 Vitality</td>
<td>-</td>
<td>.53***</td>
<td>.54***</td>
<td>.72***</td>
<td>.34***</td>
<td>.29***</td>
<td>.41***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Time 1 Mood</td>
<td>-</td>
<td>.72**</td>
<td>.72***</td>
<td>-.00</td>
<td>-.12</td>
<td>-.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Time 2 Mood</td>
<td>-</td>
<td>.77**</td>
<td>-.11</td>
<td>-.09</td>
<td>-.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Time 3 Mood</td>
<td>-</td>
<td>.01</td>
<td>-.02</td>
<td>.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7. Time 1 Arousal</td>
<td>-</td>
<td>.62***</td>
<td>.65***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Time 2 Arousal</td>
<td>-</td>
<td>.80***</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>9. Time 3 Arousal</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***p < .001 (two-tailed)
**  p < .01 (two-tailed)
*   p < .05 (two-tailed)

In order to better understand the underlying factor structure of vitality, mood, and arousal, I conducted an exploratory factor analysis (EFA) on Time 1, Time 2 and Time 3 mood, arousal, and vitality. The Kaiser-Meyer-Olkin measure of sampling adequacy was .66, indicating that the partial correlations among the variables were small enough that the items were
appropriate for factor analysis. Bartlett’s Test of Sphericity was significant, $\chi^2(36) = 1114.85$, $p < .001$, indicating that the correlation matrix is not an identity matrix, and is therefore appropriate for factor analysis. I performed a principal component analysis with a varimax rotation on the scores of the 9 items. My goal was to have the smallest possible number of factors and for each item to have a substantial pattern coefficient on only one latent factor, with items loading more than .4 on the relevant factor and less than .4 on all other factors. Based on examination of the scree plot and explained variance associated with eigenvalues, as well as interpretability of the rotated factors and simple structure, a two factor solution was most appropriate, accounting for 76.77% of the total variance.

The factor loadings are presented in Table 13. Of importance, according to the EFA, vitality is part of the “mood” factor, which accounted for 49.06% of the variance with an eigenvalue of 4.42. The second factor, “arousal,” consisted of the three arousal measures, and accounted for 27.71% of the variance with an eigenvalue of 2.49. Thus, it appears that vitality is structurally related to mood, but not arousal.

Table 13

*Rotated Factor Loadings for Vitality, Mood, and Arousal*

<table>
<thead>
<tr>
<th>Item</th>
<th>Mood</th>
<th>Arousal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1 Vitality</td>
<td>.80</td>
<td>.30</td>
</tr>
<tr>
<td>Time 2 Vitality</td>
<td>.78</td>
<td>.33</td>
</tr>
<tr>
<td>Time 3 Vitality</td>
<td>.80</td>
<td>.39</td>
</tr>
<tr>
<td>Time 1 Mood</td>
<td>.85</td>
<td>-.14</td>
</tr>
<tr>
<td>Time 2 Mood</td>
<td>.88</td>
<td>-.17</td>
</tr>
<tr>
<td>Time 3 Mood</td>
<td>.89</td>
<td>-.05</td>
</tr>
<tr>
<td>Time 1 Arousal</td>
<td>.06</td>
<td>.84</td>
</tr>
<tr>
<td>Time 2 Arousal</td>
<td>.01</td>
<td>.90</td>
</tr>
<tr>
<td>Time 3 Arousal</td>
<td>.08</td>
<td>.90</td>
</tr>
</tbody>
</table>
Chapter V: Study 1 Discussion

Based on the results of the above analyses, my hypotheses were not supported. First, I found no evidence that self-control depletion predicted risky behaviour. Contrary to previous research (e.g., Bruyneel et al., 2009; Freeman & Muraven, 2010), I did not find that degree of risky behaviour differed between the depletion and control conditions. Indeed, degree of risk was unrelated to vitality, self-control, intrinsic motivation, or perceived autonomy. Furthermore, rather than autonomous risk replenishing self-control, I found that forced risk was depleting. Specifically, I found that compared to participants in the autonomous risk condition who were not depleted, all other participants showed evidence of depleted self-control strength. For participants who did not experience the depletion task, the only source of depletion was the forced risk on the BART task. Of importance, given that there were no choices on the forced risk task (i.e., responses were yoked to those of a previous participant), it was likely the nature of the forced risk rather than having to make choices that was depleting. This unexpected result is interesting, as it suggests that forced risk is depleting. Previous research shows making choices is more depleting than implementing the choices made by someone else (Vohs et al., 2008) and that no-choice and autonomous choice conditions produce similar results, as compared to controlled (false) choice conditions (Moller et al., 2006). My current findings suggest that having no choice about a situation where there is a potential for personal loss (i.e., forced risk) is a depleting experience. In contrast, relatively autonomous risky choices do not appear to be depleting, at least in the short-term.

Considering together my findings that degree of risk was unrelated to self-control, but that, overall, forced risk was depleting, it appears that although the depletion manipulation was successful, depletion did not affect degree of risky behaviour. Thus, either the effect of self-control depletion on risky behaviour was too small to detect in the current sample or self-control depletion does not always predict increased risk. Either way, the effects of depletion on risk may be less robust than the current literature suggests.

There was no evidence that vitality mediated the relation between risk and self-control. Indeed, there was no relation between the variables to mediate. Degree of risk was unrelated to both baseline and final self-control strength. Vitality was assessed at three timepoints (i.e., directly before the baseline self-control measurement, after the depletion task, and after the BART), so if vitality does act as a barometer of self-control strength, then I would have expected
either Time 2 or Time 3 vitality (or both) to at least partially account for the relation between baseline and final self-control. However, rather than vitality acting as an experiential barometer of self-control strength, I found no evidence that changes in self-control strength are mediated by perceived vitality.

If vitality doesn’t change to reflect available self-control strength (or willingness to use self-control strength), then when does it change? I found that vitality and mood both decreased from Time 1 to Time 2 and increased from Time 2 to Time 3. The overall effect sizes of time on mood and vitality over time were both large, accounting for nearly a third of the variability in the dependent measures. In contrast, the influence of time on arousal was marginally significant, with a very small effect size (about 2% of the variability in arousal accounted for by time). Thus, it appears that vitality behaved more like mood than arousal over the course of the study.

I did find that vitality and mood behaved differently when I examined whether intrinsic motivation and perceived autonomy mediated changes in vitality and mood over time. Specifically, changes in vitality are partially mediated by intrinsic motivation, but no such effect occurs for mood or arousal. These results support the conceptualization of vitality as a type of positive affect affected by motivation, unlike mood, which tends to be relatively unaffected by motivational states (e.g., Muraven et al., 2008; Nix et al., 1999). However, the EFA yielded a two-factor solution, suggesting that vitality does not consist of a unique factor, and instead is more closely related to mood than to arousal. More research is needed to disentangle the constructs of mood and vitality, but the results of this study suggest that mood and vitality are not necessarily separate constructs.

Limitations and Future Research

A limitation of Study 1 is the relatively small sample size for subgroups. Sample sizes of about 30 participants per condition should have been adequate to detect the medium to large effect sizes typically reported in the literature. A larger sample would be required to detect smaller effect sizes, and it may be that the null findings in Study 1 were due to type two error rather than an actual lack of relation among the variables.

The undergraduate sample was another limitation of this research. This sample of mainly undergraduate students does not reflect the demographic characteristics of the general population. The high proportion of female participants reflects the demographic profile of first
year psychology students at the University of Guelph, but not the larger population. It may be that inter-group (e.g., gender, age) differences exist in perceptions of risk and self-control, and that these results cannot necessarily be generalized to other populations.

A third limitation of Study 1 was the measure of risk. Given the lack of relation between voluntary BART choices and other variables, it appears that the BART may be too general a measure of risk to capture changes in risk propensity following self-control depletion. In addition, it may be that risk is revitalizing only to the extent to which the risky activity itself is autonomously chosen, rather than autonomy resting at the level of choice over degree of risk. A longitudinal diary study of perceived depletion, vitality, and risky activities in daily life could provide a means of assessing truly autonomous risk.

Finally, the relatively low internal consistency of the arousal measure is a limitation of this study, and future research should consider using a more reliable measure of arousal (e.g., the Perceived Arousal Scale; PAS; Anderson, Deuser, & DeNeve, 1995).

**Self-Control in Context: Transition to Study Two**

To what extent do people actively and consciously conserve self-control strength and seek replenishing activities when their self-control has been depleted. To what extent are people aware of their motivations for risky behaviour and the reasons underlying self-control failure? Study 2 provides a richer understanding of people’s experiences of self-control depletion, vitality, and risky behaviour. Taken together, studies one and two provide complementary data, yielding a broader understanding of the actual and expected consequences of self-control and self-control failure.
Chapter VI: Study 2 Methods

What kinds of behaviours do people engage in to replenish their depleted self-control? How do people interpret and attribute behaviours related to self-control and self-control failure? Study 2 involved a qualitative descriptive approach, based on data collected during face-to-face interviews, with the aim of providing a richer understanding of self-control and self-control failure.

Methods

Sampling plan. As opposed to some quantitative methods, where probabilistic sampling is used with the goal of collecting a representative sample (Patton, 1987), many qualitative methods use purposeful sampling with the goal of selecting information-rich cases. When designing my sampling plan for Study 2, I assumed that the ways in which people view self-control and self-control failure would likely vary across life stages. For example, the self-control challenges faced by someone raising children could be very different from the self-control challenges of someone enrolled in university or someone with a stressful job. Therefore, in Study 2, I used maximum variation sampling (Patton, 1987) with the goal of recruiting a diverse range of ages for both men and women. Specifically, I recruited men and women from a broad range of ages and backgrounds in order to capture both demographic and phenomenal variation related to self-control and self-control failure (Sandelowski, 1995; 2010). The aim of maximum variation sampling is to provide a deeper understanding of the construct of self-control, but the results cannot necessarily be generalized to populations beyond the sample (Sandelowski, 1995; 2010). Although I planned to recruit around 12-15 participants, I recruited until I approached theoretical saturation, when participants no longer broached new topics related to self-control or self-control failure (Charmaz, 2003; Daly, 2007; Patton, 1987; Sandelowski, 2010).

Recruitment. Participants were recruited from the Guelph community by advertising on the online community message board www.kijiji.com. Specifically, I posted an advertisement asking for “people to participate in an interview about self-control and self-control failure.” Upon responding to the advertisement, participants were informed that they would be compensated $20 plus parking costs. Most of the interviews took place at the University of Guelph; one interview took place in the participant’s home, due to mobility issues. Interviews took place from January until April 2011.
**Participants.** Participants were 17 adults recruited from the Guelph community. Demographic profiles of participants are listed in Table 14.

Table 14

*Demographic Profiles of Participants in Study 2*

<table>
<thead>
<tr>
<th>ID</th>
<th>Gender</th>
<th>Age</th>
<th>Relationship Status</th>
<th>Ethnic Background</th>
<th>Family Income</th>
<th>Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>male</td>
<td>58</td>
<td>single</td>
<td>White</td>
<td>Less than $20k</td>
<td>Jobs</td>
</tr>
<tr>
<td>2</td>
<td>female</td>
<td>47</td>
<td>divorced</td>
<td>Caucasian</td>
<td>$30 - 39k</td>
<td>Administration</td>
</tr>
<tr>
<td>3</td>
<td>male</td>
<td>60</td>
<td>married</td>
<td>Canadian</td>
<td>$60 - 69k</td>
<td>Facilities</td>
</tr>
<tr>
<td>4</td>
<td>female</td>
<td>37</td>
<td>married</td>
<td>Italian</td>
<td>$80 - 89k</td>
<td>Homemaker</td>
</tr>
<tr>
<td>5</td>
<td>male</td>
<td>34</td>
<td>married</td>
<td>White</td>
<td>$70 - 79k</td>
<td>Apprentice heavy diesel mechanic</td>
</tr>
<tr>
<td>6</td>
<td>female</td>
<td>36</td>
<td>common law</td>
<td>Canadian</td>
<td>$90 - 99k</td>
<td>Resource consultant</td>
</tr>
<tr>
<td>7</td>
<td>female</td>
<td>25</td>
<td>single</td>
<td>Caucasian</td>
<td>$70 - 79k</td>
<td>Student</td>
</tr>
<tr>
<td>8</td>
<td>female</td>
<td>29</td>
<td>divorced</td>
<td>Canadian</td>
<td>$50 - 59k</td>
<td>Marketing &amp; sales</td>
</tr>
<tr>
<td>9</td>
<td>female</td>
<td>42</td>
<td>married</td>
<td>East Indian</td>
<td>$90 - 99k</td>
<td>Research</td>
</tr>
<tr>
<td>10</td>
<td>female</td>
<td>58</td>
<td>divorced</td>
<td>Anglo</td>
<td>Less than $20k</td>
<td>Program coordinator</td>
</tr>
<tr>
<td>11</td>
<td>female</td>
<td>46</td>
<td>common law</td>
<td>Caucasian</td>
<td>$40 - 49k</td>
<td>Bookkeeper</td>
</tr>
<tr>
<td>12</td>
<td>female</td>
<td>45</td>
<td>divorced</td>
<td>British</td>
<td>$30 - 39k</td>
<td>Marketing family business</td>
</tr>
<tr>
<td>13</td>
<td>male</td>
<td>41</td>
<td>married</td>
<td>White</td>
<td>$20 - 29k</td>
<td>Dispatcher, DJ, Photographer</td>
</tr>
<tr>
<td>14</td>
<td>male</td>
<td>42</td>
<td>single</td>
<td>Caucasian</td>
<td>$80 - 89k</td>
<td>Auto assembler</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Greenhouse but went to get</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Geology Honours degree</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- geoscientist in future</td>
</tr>
<tr>
<td>15</td>
<td>male</td>
<td>31</td>
<td>married</td>
<td>Polish</td>
<td>$20 - 29k</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>female</td>
<td>25</td>
<td>married</td>
<td>Polish</td>
<td>Less than $20k</td>
<td>Graduate student</td>
</tr>
<tr>
<td>17</td>
<td>male</td>
<td>55</td>
<td>married</td>
<td>Caucasian</td>
<td>$50 - 59k</td>
<td>Self-employed</td>
</tr>
</tbody>
</table>
Participants were 59% female ($n = 10$) and 41% male ($n = 7$). The average age of participants was $M = 41.82$ ($SD = 11.32$), and participants ranged in age from 25 to 60. The median age of male participants (median = 42.00) was slightly older than that of female participants (median = 39.50), but a Mann-Whitney U test did not show a significant difference between the groups, $p = .36$. Almost half of participants were married (47%, $n = 8$), 18% were single ($n = 3$), 24% were divorced ($n = 4$), and 12% were common-law ($n = 2$). Participants self-identified their ethnic background as Anglo ($n = 1$), British ($n = 1$), Canadian ($n = 3$), Caucasian ($n = 5$), East Indian ($n = 1$), Italian ($n = 1$), Polish ($n = 2$), and white ($n = 2$). Two participants self-identified as immigrants to Canada (one from India, one from England). Participants reported diverse self-identified occupations. Self-reported gross family income of participants ranged from less than $20 000 to between $90 000 and $99 000 (median = $50 000 - $59 000).3

**Procedure.** All participants were interviewed in a private, face-to-face setting. Upon their arrival at the interview location, I provided participants with an informed consent form, which explained the nature of the study and that the interview would be recorded using a voice recorder. Using a semi-structured interview format, I asked participants about their expectations and explanations regarding self-control and self-control failure (see Appendix H for an interview guide). Broadly, I asked participants to define what self-control meant to them, to talk about a time when they had a lot of self-control, a time when they had very little self-control, and to discuss how they generally go about getting their self-control back when it has been depleted. I digitally recorded the interviews, and had the recordings transcribed by Transcript Divas ([http://transcriptdivas.ca](http://transcriptdivas.ca)), a transcription service located in Toronto, Ontario.

I began each interview by asking participants to define what self-control meant to them. I iteratively revised the interview script during the first few interviews in order to capture unanticipated patterns in the data. Based on topics discussed during the first few interviews, I revised the original interview schedule to include follow-up questions about people’s perceptions about the timing of self-control and synonyms for self-control (see Appendix H, question #1). During these initial questions, most participants gave an example of having a lot of self-control

3 “Family income” may reflect parental income for student participants still living at home.
or of self-control failure; these examples framed the subsequent discussion of self-control and self-control failure. I did not follow the interview script sequentially during interviews, but instead allowed participants to guide the flow of the conversation (McCracken, 1988). When necessary, I used the probes in the interview schedule to solicit more information from participants. However, most participants had little trouble in describing detailed scenarios related to self-control and self-control failure. The interviews lasted between 23 and 53 minutes ($M = 35, SD = 9$). At the end of the interviews, all participants completed a brief demographic questionnaire (see Appendix I), were fully debriefed about the purpose of the research, and received $20 in compensation, along with parking costs (typically $2 or $3).

**Data Management and Analysis**

I imported verbatim transcripts of the interviews into the qualitative analysis software NVivo (www.qsrinternational.com/products_nvivo.aspx). I used NVivo to manage the data, code the data, and identify themes. To analyze the interview data, I used qualitative description (e.g., Sandelowski, 2000; 2010), closely following the five-phase thematic analysis approach outlined by Braun and Clarke (2006).

**Phase 1: Familiarity with the data.** Braun and Clark (2006) suggest that thematic analysis should begin with immersion in the data, which requires “‘repeated reading’ of the data, and reading the data in an active way—searching for meanings, patterns and so on.” (p. 87). To this end, while collecting data, I followed a pattern of recording three to four interviews and sending them out for transcription. Then, I reviewed the interview transcripts for accuracy and made notes on potential codes, themes, and points of interest. In this way, reviewing transcripts overlapped with the data collection process, making it easier to identify when I approached theoretical saturation and could stop recruitment (Charmaz, 2003; Daly, 2007; Patton, 1987).

**Phase 2: Generating initial codes.** After reviewing all the transcripts for accuracy and content, I began generating initial codes. My coding was inductive and data-driven rather than theory-driven. That is, as I began coding, I quickly realized that analyzing the data solely through the lens of the strength model of self-control would impede a rich description of the dataset, and thereby limit a thorough understanding of how people view self-control and self-control failure. Therefore, I initially coded for “as many potential themes and patterns as possible” (Braun & Clarke, 2006, p. 89). However, I used considerations of risk, vitality, autonomy, depletion, and
replenishment as sensitizing factors in my analysis. I generated initial codes with the goal of giving each data item (i.e., transcribed interview) full and equal attention, in order to create a comprehensive map of repeated patterns (i.e., themes) across the data set (Braun & Clarke, 2006; Sandelewski, 2010). My coding was inclusive, in that I retained text surrounding the quote of interest in order to provide context for the code (Braun & Clarke, 2006). Coding was an iterative process, such that as I identified new codes, I revisited previously coded interviews to check for occurrences of the new code.

In order to aid integration with the quantitative results of study 1, I took an essentialist/realist epistemological approach to the interview data, assuming that people’s descriptions of their motivations and experiences largely reflect reality (Sandelowski, 2000; 2010). Similarly, I focused on identifying semantic, rather than latent codes and themes, progressing from describing the data, to interpreting its patterns and their implications (Braun & Clarke, 2006).

**Phase 3: Searching for themes.** While coding the interviews, I generated over 100 codes. In order to manage this large number of codes, I began to sort the codes into preliminary themes as coding progressed. The NVivo software allows codes to be moved and sorted through a drag-and-drop hierarchical display. This allowed me the flexibility to be able to iteratively sort and resort my codes as I progressed through coding. Once I had coded all of the interviews, I returned to my list of codes and potential themes. I considered how the coded data extracts fit together, looking for patterns in how participants talked about self-control and self-control failure (Braun & Clarke, 2006).

**Phase 4: Reviewing themes.** Once I had a well-organized preliminary list of themes, I reviewed the data extracts for each theme and subtheme. To ensure rigorous analysis of the data, I used Patton’s (1987; 2002) suggestions for data validation and verification. Specifically, I looked for internal homogeneity within themes, such that the data was internally coherent and consistent and external heterogeneity across themes, such that themes could be distinguished from one another. Where data did not fit well within a candidate theme, I examined negative cases (i.e., cases that did not fit the general pattern of a candidate theme) and considered rival explanations for the data (Patton, 1987). After two cycles of reviewing themes, recoding as
necessary, I had a “satisfactory thematic map” (Braun & Clarke, 2006, p. 92), comprising six main theme categories, each with associated sub-themes.

**Phase 5: Defining and naming themes.** Once I had a stable thematic map of the data, I began producing a narrative description and context for each theme, attempting to identify the “‘essence’ of what each theme is about” (Braun & Clarke, 2006, p. 92). To accomplish this, I considered how each theme related to its coded extracts and to the other themes. I reviewed the coded data extracts and organized them “into a coherent and internally consistent account, with accompanying narrative,” identifying “what is of interest about them and why” (Braun & Clarke, 2006, p. 92). These major thematic areas that I identified provided my research questions for Study 2 (see Figure 1; a complete thematic map is provided in Appendix J).

![Figure 1. Thematic map of people’s experiences of self-control and self-control failure.](image)

**Phase 6: Producing the report.** After creating a narrative account of my themes, I reworked them into the final results section of my dissertation. I attempted to embed data extracts within an analytic narrative to describe the data “within and across themes” (Braun &
Clarke, 2006, p. 93). Where necessary, I referred to the relevant literature to aid interpretation of the results.
Chapter VII: Study 2 Results

Overview

My qualitative investigation of self-control and self-control failure was necessarily filtered through my own experience with the self-control literature and with self-control itself. As a researcher, I took an active role in identifying themes and patterns in the data, selecting and grouping themes, and embedding the themes in a narrative structure (Braun & Clarke, 2006; Taylor & Ussher, 2001). The ways in which I developed and interpreted themes are analogous to the decisions I made while developing Study 1 about how I would manipulate and measure constructs. This process involved careful decisions about operationalization, yielding variables carefully wrapped in a package of quantitative measurement. When studying self-control quantitatively, it is easy to consider self-control separately from motivation, and motivation from affect. It is also easy to forget about the breadth of the self-control construct when you are focusing on behavioural laboratory measure of self-control.

In contrast, when you start asking people about self-control and self-control failure, you get a narrative description of their lives. Self-control and self-control failure are the poles of a construct that determines how people think, feel, and behave. People’s management of their daily actions, the ways in which they perceive the environment, and their relationships with others, all originate from a base of self-control or self-control failure. In Study 2, I ended up with a description of how people’s lives can be viewed through a lens of self-control. I have used the major themes I identified in the data as research questions to shape my description of the results.

I begin by examining how people define and construe self-control. I then review the anticipated outcomes of self-control and self-control failure. Self-control outcomes occur based on interactions between personal and external factors. I explore internal and external attributions for self-control and self-control failure. Relationships with others involve both internal and external factors related to self-control; I also examine how self-control operates in a social context. Finally, I review ways in which participants replenish and regain depleted self-control. For clarity, major thematic areas are divided into chapters.
Chapter VIII: How Do People Perceive Self-Control?

Not surprisingly, self-control means different things to different people. The first major theme area I identified relates to people’s perceptions of self-control and self-control failure. Within this major thematic area, I identified three sub-themes, comprising people’s perceptions of the processes that define self-control, of the timing of self-control, and of the limits and difficulty of self-control.

Definitions of Self-Control

Which processes are perceived to be part of self-control; what does self-control look like? This first sub-theme exploring how people perceive self-control shows that participants had diverse definitions for self-control, and many participants used different terms to refer to different kinds of self-control. However, I identified four main definitions for self-control: stopping behaviour, starting behaviour, choices, and guidelines.

Stopping behaviour. The most common way that participants defined self-control involved emotional or behavioural restraint. “Yes, it’s a ‘put the brakes on’ thing. Definitely. Because I’ve learned it’s not wise to not have a filter between your brain and your mouth” (P10, female, 58).

Well, I would say it’s being able to control yourself when you know, I guess that the outcome isn’t going to be a great one. Being able to stop yourself when you know that, okay, I should draw the line here and being able to say, okay, stop. (P2, female, 47)

Defining self-control in terms of behavioural or emotional restraint typically involves talk of a boundary or limit. These limits are often specific to a particular domain of self-control.

I guess it is the ability to stay in control of what you perceive to be your limit for something. You put a limit on something and you are able to attain that limit and reach that limit and stick with that limit. I think about controlling yourself around how much you are drinking, how much you are eating, how much money are you spending. Those are the three main areas for me. (P6, female, 36)

Starting behaviour. Often referred to as “self-discipline,” participants also defined self-control in terms of continuing or starting a behaviour. Defining self-control as behavioural initiation or maintenance is the flip side of behavioural restraint; self-control involves doing what you need to do, and not doing what you want to do.
Say for example if you want to sleep all day, you have to have that control to get out of bed (P4, female, 37)

Hmm. I would think of discipline as a word for self-control because you’re disciplined enough to not do that thing that you should know that you shouldn’t be doing. Hmm. I can’t think of another word right offhand. It’s more of a discipline that—that you—you’re following through with what you know you should do. (P2, female, 47)

**Choices.** The process of making decisions to either stop or start an emotional or behavioural response is another form of self-control. Specifically, participants talked about self-control as making choices or decisions. These decisions may be split-second, fairly automatic responses, or may involve important life choices.

How you want to react. How are you going to react to something? Is it a big deal or is it not a big deal? Is it a good thing? Is it a bad thing? And try to roll it around in your head before you react to it, and it all happens in a millisecond. Yes. I mean it’s a real quick thought process. (P14, male, 42)

Participants’ definitions of self-control as decision-making sometimes involved an active process, whereby the actor experiences agency over his or her decisions.

I think self-control is your ability to be given an option and to decide whether or not you are going to accept that or choose different outcomes based on it. So if I give you, an example, crossing the street, right, I can decide to cross the street when there is a truck coming, or I can wait to cross the street until it’s clear, or I can wait to cross the street at a different point. (P8, female, 29)

In contrast, choices and decisions can feel forced, with limited time for conscious deliberation.

It’s weird because a lot of decisions that you make and the self-control that you have, you don’t really sort of think about it that much. It just happens. It is not something you sort of sit back and go “hmm,” and then sort of take ten minutes to think about it. You sort of either do or you don’t. So I don’t know. I think, probably, I think I probably had more... I mean I remember when me and the ex split and I bought her out of the house and other things happened and this and that. I ended up selling the house and I met my wife. I probably had more self-control because I had to make more decisions in that sort of time space. (P5, male, 34)
**Guidelines.** Some participants discuss self-control not in terms of choices surrounding starting or stopping behaviour, but in terms of the goals and guidelines underlying those choices and behaviours.

Okay. I see self-control as starting from some sort of belief or idea in your head of what’s, like, good and not good, and then acting in that fashion. Like having some sort of goal or objective, like a New Year’s resolution or whatever. So, you know, you have something that you want to work for that you value or that you think is great, like not smoking or some people not eating chocolate, and then having some sort of plan to get there and, like, reinforcing in your head, like, what you should, I think, that makes sense, and following that. Like not—like having that moral code where, you know, when you get tempted, you just don’t do it, right. (P16, female, 25)

Thus, the decision to exert self-control or not may depend on one’s relevant guidelines and goals.

For me, self-control is having check on your emotions and actions associated with that. So whatever you’re going through in your mind, “do it, should I do it, should I not do it?”, and then you have to have a reasoning behind it, “why should I do it, why should I not do it?” And then if “why should I not do it?” weighs more than “why should I do it?”, then it’s self-control. (P9, female, 42)

Participants discussed how goals and guidelines are developed based on one’s internal value structure, and determine how and where one tries to use self-control. For some, this means that embedding self-control in a framework of goals or guidelines is an intentional, active process.

I think it’s something you do intentionally, or most of the time it’s intentional. And it’s just an inner form of discipline and it’s, kind of, like your morals sometimes coming to surface saying, “you should do this, because...” or, “you should not do this, because...” And so there’s a reasoning involved. Sometimes there are, I think, situations or circumstances where you have to exercise self-control and you don’t want to. (P11, female, 46)

However, for others, self-control stemming from moral and ethical precepts is an automatic process, developed and practiced since childhood⁴.

Well it’s just basic sort of ground rules. I mean it’s just something that sort of like instilled into you by your parents, even at a young age, that you don’t steal anything, because it is bad, because that was somebody else’s. (P5, male, 34)

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⁴ Participants’ perceptions of the process of developing goals and guidelines as a framework for self-control is discussed in more detail in Chapter X.
Thus, people’s definitions of self-control can range from immediate control of behaviour (i.e., starting or starting), to the decision or choice that initiated that behavioural control, to longer-term goals and guidelines that motivated the decision and behaviour.

**Timing of Self-Control**

Central to an exploration of self-control and self-control failure is an analysis of how people perceive the timing of self-control. That is, *when* does self-control occur? In this second sub-theme, I explore how participants perceived self-control as occurring across diverse time-spans. The time-spans of self-control can be broadly grouped into three categories, ranging from very short-term to very long-term views of self-control: moment-to-moment, day-to-day, and years to lifetimes. These categories were not mutually exclusive across participants. Instead, different timelines of self-control appear to serve different purposes.

Self-control requires setting goals or standards, monitoring progress relative to those standards, and having both available self-control strength and the motivation to exert self-control (e.g., Baumeister & Vohs, 2007). Different domains of self-control are experienced in different timeframes. In order to adapt to changing demands of the environment, with its associated temptations, people must monitor and manage their self-control from moment-to-moment (Baumeister & Vohs, 2007). However, motivation to monitor and manage self-control occurs in a longer-term timeframe, ranging from days to weeks. Standards and guidelines for self-control are developed over years or across a lifetime of self-control efforts.

**Moment-to-moment.** For most participants, self-control can operate moment-to-moment. In particular, participants see negotiating environmental demands as requiring moment-to-moment self-control.

Well, see, I’m saying losing self-control as a—like a momentary thing. You live in the moment. You let whatever happened is going to happen because it’s going to happen anyway, so why fight it? And you use your self-control to be able to balance what you experience in that moment, right? (P1, male, 58)

The moment-to-moment view of self-control acknowledges that the environment can be unpredictable, and any given moment could create a new, unanticipated self-control demand.

I think you could be faced with the moment where you need it—that could happen at any time of day. I think if, you know—like, self control—somebody cuts you off and almost creates an accident; some people want to flip... Yes, gesture in
For those for whom the environment is rife with temptations to lose self-control, self-control can be a moment-to-moment struggle.

In terms of eating, like, the—my daughter says, hey, you’ve got to be full. You know, like, you’ve had a full supper. But I love the sweets, and I know in my head that I shouldn’t be. And like I’ve said, I’ve cut out the chocolate bars. I was in the grocery store today and I walked down the chocolate bar aisle and then I’m, mm, oh, yeah, mm-mm—no. No, no, no, chocolate bars, no cookies. So that, I’m trying. (P3, male, 60)

In addition, it can be difficult to keep in mind that one’s moment-to-moment self-control will have long-term consequences.

I’ve been trying real hard lately to realize that I need to exercise self-control now because, if I don’t, it’s going to have ramifications that could last from five minutes from now for the rest of my life, depending how serious it is, right. (P13, male, 41)

Participants noted that in situations involving the momentary experience of self-control and self-control failure, there isn’t always time for careful deliberation. That is, loss of self-control, when perceived in a moment-to-moment timeframe, can be too quick to process, over before there is time to think about the situation. Highly charged emotions can contribute to losing both behavioural self-control and the perceived ability to monitor or manage that self-control.

Usually I can go from zero to 100 in under a second and a minute later be calmed down, walk away, think about it and like, “man, I hate that.” I could be upset for hours later about something that’s really bugging me, but the initial blow up is usually very quick and blinding and over and done in no time. (P13, male, 41)

Due to the fact that impulses to lose self-control can arise at any time; the ability to override these momentary desires can determine the perceived success of a larger self-control effort.

When I run—when I used to run on the treadmill, I should say—I might have three minutes to go after I have been running for fifty minutes, it is like “come on, three minutes, you can do it,” and that is what I would do to pump myself up just to get through it. In the end you feel amazing but if you give up that fifty minutes you did didn’t mean anything but that three minutes you gave up hurt the whole thing. (P4, female, 37)
Maintaining moment-to-moment self-control is also required for longer-term self-control efforts. For example, waiting patiently for a few days can require many instances of momentary self-control.

Yeah, some certain things you have to say okay, no, let me wait for a few days. Like if say supposing you made a phone call or you’re expecting somebody to give you phone call with a certain answer and you’re not getting that answer, and say “okay I want to sit down, write a nasty e-mail.” I just want to call and say, “why is it taking so long.” And you say, “okay, you know, patience, self-control.” (P9, female, 42)

Although moment-to-moment self-control can be an ongoing struggle, participants reported that these kinds of short-term self-control efforts can create a pattern of behaviour that facilitates longer-term, more automatic and habitual self-control.

I think that initially self-control for me is shorter term but you have to start by exercising a lot of self-control and be very cognizant of things but then once you do it for a longer period of time it becomes more of a discipline, something that I don’t have to consciously think about as often. Becomes a pattern. (P6, female, 36)

Thus, the struggle to monitor and manage self-control on very short-term basis often occurs with the hope that it will transition into longer-term self-control. These moment-to-moment self-control strategies feed into a larger context or goal framework for self-control.

I guess it varies. I guess ultimately, like, most of, you know, my goals are something like that, or things I have to control myself with are longer term. But then there are certain situations that come up that I have to deal with on a moment by moment basis, so they are little pieces that form a bigger whole, I guess, and knowing that restraining myself now or self control now is part of a longer term thing. (P7, female, 25)

**Day-to-day.** Momentary self-control is often part of a longer-term strategy of day-to-day monitoring and management of self-control, with the aim of goal achievement. That is, momentary self-control depends on the larger context of daily self-control, or how internal states (e.g., mood, arousal) and external events create motivational states that facilitate or impede self-control efforts. Some participants monitored and experienced self-control in terms of changing day-to-day contexts.
I think it’s day to day. Yeah. Yeah. Like, I think it can change depending on how you’re feeling on a certain day. I think some days you have more self-control than others. Depending on how you’re feeling probably. (P2, female, 47)

Of course, daily self-control is made up of a series of moments. However, focusing on a day-to-day timeline of self-control involves recognizing a larger context than momentary self-control.

You may overreact or you may under react, because then you’ve got to prioritize it and fit it into where everything’s going on in your day. If you’re having a really good day and something that might normally disturb you happens, it might be a big deal. Or it could be something really small and then it fits into that system in your head with everything that’s going on during the day and it could all sort of be the final straw on your camel’s back. Not [just] necessarily that day, but what’s currently happening, like what’s going on at that point in your head. (P14, male, 42)

In the momentary view of self-control, there is one situation to be addressed (e.g., wake up or sleep in). In the daily view, self-control is more contextualized, comprising not just the self-control situation, but external events and demands as well (e.g., wake up and attend work or sleep in and lose your job).

I still think you use self-control even, like, on a daily basis. I’ve still got to get up for work on time. I still have got to go to work. I could say, “stuff it, I am not going to work....” It’s every day that you wake up, you’re still going to have to have some self-control. (P5, male, 34)

In particular, self-control is often monitored and managed over the course of days or weeks. Participants talked about both how periods of sustained self-control can lead to an abrupt loss of self-control and how periods of low self-control can lead to abrupt increases in self-control striving. Of importance, these perceptions of having or losing self-control occur in a framework of days, weeks, or even months, as opposed to minutes or seconds. In particular, sustained self-control efforts seem to be associated with longer-term perceptions of self-control.

I used to be vegetarian so that’s something on a daily basis for years and years and years I’d be like—sometimes I would really want fish and I’m like oh, I kind of want it, but were they farmed raised and I don’t think I could kill my own fish and eat and dah, dah, dah. All of these other things come into my mind. (P7, female, 25)
Again that would probably be the Atkins Diet, not having any [carbs]... And I did that for nine months and ended up losing 70lbs so I kept that vision and literally did not go past 20 grams of carbs in a day. (P6, female, 36)

More so than the momentary self-control required to restrain impulses and ignore temptations, self-control efforts viewed over days and weeks tend to be viewed in a context of goal directed behaviour. Participant 16 noted:

> So sometimes, you know, if I’m just—if I feel like I’m coming to an edge, I guess, and there’s just a lot of pressure and there’s a lot of stuff going on then I’ll let certain things go and, kind of, you know, ease the pressure a little bit, but as long as I can handle it, I try to, as much as I can. So it seems to come in, kind of, waves of maybe a few weeks where I’m feeling really weak and somewhat out of control. And then, you know, and then I have a couple of good weeks and I’m doing really well and then, you know, something will push me over the edge and I’ll, kind of, break or something. (P16, female, 25)

For some participants, lapses in self-control occur in a timeframe of days or weeks rather than minutes or hours. Participant 11 reported that she rarely lost self-control, and then only for one day out of every six or eight weeks:

> It’s pretty limited. Yes. Because I try to, you know, do it very seldom, like the DVD. If I buy one it’s usually, like, six weeks before I do a similar thing. You know, either I go over the budgeted amount or I buy something where I’m like, “hmm, don’t need it, I just want it and I feel like I deserve it, blah, blah, blah.” So it’ll be six or eight weeks, so it’s not like every week I’m struggling. (P11, age 46, female)

Once self-control has been lost, efforts to regain self-control often take place on a day-to-day basis. Certain blocks of time, such as holidays, weekends, and special events are allocated for losing self-control. Participant 2 explained that the process of regaining self-control can take several days or weeks:

> But it probably wouldn’t be that day. But I would be thinking about it. Like, okay, this can’t go on forever. Like, you know, maybe for the one or two weeks of holidays and then cut back…. (P2, age 47, female)

Plans to regain self-control often involve thinking in terms of days rather than shorter units of time. Participant 1 noted, “Well, right now I just bought 20 cigars and I figure that that’s going to
last me two weeks. Well, yeah, about 14 days. One cigar a day, so... That’s that time frame” (P1, male, 60). Similarly, self-control is often lost on a day-to-day basis. Participant 4 stated:

I have been talking to myself lately. I will be like “wow, you’ve got to start doing a little bit more. You’ve got to do this, you’ve got to do that…” You wake up in the morning and then, again, life gets in the way and you forget about what you told yourself the day before. [laughs] (P4, female, 37)

Thus, when viewed in terms of a day-to-day or week-to-week timeframe, discussions of self-control typically involve a framework of goals and motivation. It appears that motivation is managed over days, but may be implemented at a moment-to-moment level. In contrast, reflections on the overall success or failure of a goal effort tend to view self-control in terms of years or a lifetime of self-control striving. Furthermore, lifetime goals (e.g., quitting smoking, planning for retirement) require self-control in the very long-term, experienced over a course of years.

**Years to lifetimes.** When self-control is viewed over the course of years or a lifetime, it is often embedded in a discussion of planning for the future through long-term goals and projects. For example, health and financial goals require monitoring self-control across years, in addition to daily and momentary self-control demands.

I think it depends. I mean, it depends on what sort of thing it is. If it is like money based on where you want to be in X amount of years, that is going to be long term, sort of self-control or we are going to budget ourselves and all of this sort of stuff, and going to try to pay the mortgage off early. (P5, male, 34)

Recollections of successful self-control often took the form of a period of years, rather than a more short-term view. “I did that [regular gym attendance] for about eight years. Yeah, it was long. It was very satisfying. It’s addicting” (P4, female, 37).

Yeah, I was in the military. And I was very, very proud of myself. Not to the point of being conceited, but I was in very good physical shape and I felt good. [I was in the army for] oh, a little bit over two years. So.... There’s—I felt I had a real purpose then. (P3, male, 60)

However, previous problems with self-control can recur over the course of years; it can be difficult to escape one’s self-control past.
I quit smoking a couple of years ago. And so every once in a while I still have, you know, cravings and urges and stuff like that that I have to… So that’s, you know, a moment, but ultimately it’s something that I’m probably going to struggle with my entire life, is to, you know, keep having that will power. Or I guess eating too. Like, you know, preventing myself from eating sweets or something like that, like, I have a really bad sweet tooth. So that’s a longer term, you know, health and wellness kind of goal is to eat well and then applying that… (P16, female, 25)

When perceived over the course of years, self-control includes abstract goals, related to values and philosophies of life (e.g., health and wellbeing), in addition to goals related to more concrete outcomes (e.g., losing weight). Viewing self-control across years or a lifetime allows for reflection on what kind of person you want to be and how you want to live your life. “I think it is more of a long term—more like a year—you look further ahead to the year or years down the road of improving yourself… towards a goal” (P6, female, 36).

Reflection on self-control in terms of years is common when talking about major life events, such as raising children, divorce, or starting life as an adult. Changing life circumstances provoke reflection on goals and on the self-control needed to achieve those goals. “I feel like oh, I’m 25, graduating university, it’s like I need to prove myself. I actually have to do something instead of use the student excuse” (P16, female, 25). With age comes greater experience with self-control and self-control failure. This experience can shape one’s motivations to exert self-control, and change the boundaries of what counts as self-control.

Mid-30s. Yeah. Then you see things and you see your own family members—like own parents getting old, and you see what kind of needs they have, there is like a self-realization that, you know, they would prefer people around them or good company. They don’t care what I bring them. They care if I’m there or not. (P9, female, 42)

Furthermore, looking back over the years can put self-control efforts in context.

I guess it depends on what your goal is, right? I mean, I think—you know, I had a great day on Friday. It was actually the day that the divorce was finalized, and I actually went and spent the day to myself. Took the day off work, I went to the spa, like I had dinner with my new boyfriend and my parents, and it was good for me, right? I was happy that it was over and at the same time I was like look at what I’ve accomplished in that year, it’s been amazing. I think it can be little things too, right? I didn’t get a lawyer to sign the divorce papers, right, I did it all myself. So it was taking those first papers to the court and thinking “Oh my god, I did this, good for me,” right? (P8, female, 29)
Even when a loss or gain of self-control is momentary, it can be viewed in the context of years or a lifetime of self-control experience.

But the other thing of when I’ve, kind of, lost self-control which wasn’t an addiction, was in anger. It doesn’t happen often and it really doesn’t happen often, but I happened once about two years ago. Just in an argument with my husband. Okay. No kids were around, nothing, just something he said which was just—and I slapped him across the face and I’ve never ever in my life, I haven’t even spanked my five year old. And he knew it was off the wall, like... So it, like, wasn’t a big—it was just a one-time thing, but I’ve never done that. It took me 45 years to do that. [laughs] And I didn’t feel good, it wasn’t a relief, you know. (P12, female, 45)

Similarly, giving in to temptation can be rationalized in the context of a lifetime of self-control.

Because I look at the big picture and okay my rent is this much and I spend this much on food and gas, which you don’t see, you know, the gas gauge goes down. And I keep going, “but this I see,” and it’s like, “I can watch it today and I can watch it in a year, and I can watch it in two years.” And it sits in my little collection and when I’m old and can’t afford cable then I have my little library and I’m good. (P11, female, 46)

Thus, participants described how self-control can operate across a continuum of time contexts, ranging from moment-to-moment control over their thoughts and actions, to daily monitoring of goal-directed behaviour, to achieving or failing to achieve long-term goals. Participants’ construal of self-control occurs in timelines ranging from a few seconds to a lifetime. Participants’ definitions for self-control similarly ranged across time, ranging from descriptions of very short-term control over starting and stopping behaviour and making choices to viewing self-control as the ability to follow goals and guidelines. These goals and guidelines create a set of borders, delimiting behaviours that “need” to be controlled from those that do not.

How do people define and map the borders of self-control striving?

**Limits and Difficulty of Self-Control**

The specific activities involved in losing self-control vary widely from person to person. Thoughts and behaviours that one person attributes to a loss of self-control may count as maintaining self-control for another person. In this third sub-theme exploring perceptions of self-control, I describe how people discussed the limits and expected difficulty of self-control striving.
Specifically, borders defining where self-control striving is or is not required determine whether or not a given activity is perceived to be a loss of self-control. Finding an acceptable balance between self-control and self-control failure involves a process of balancing and rationalizing risks. However, the ways in which people experience risks depends on their relative degree of cognitive or emotional control. In general, participants reported that self-control is a cognitive process, whereas loss of self-control is an emotional process. Furthermore, the degree to which self-control is perceived as effortful varies widely both within and between individuals. Self-control can be described in terms of effort, an ongoing struggle between goals and temptations. Self-control can also be described as a relatively easy or effortless process. Perceptions of self-control, or how self-control is phenomenologically experienced, can influence both one’s motivation and perceived ability for successful self-control.

**Mapping the borders of risk and self-control.** Self-control striving is highly domain-specific. Delicious chocolate cake is tempting only for those who enjoy chocolate; concerns about academic achievement are motivating only for those who value such accomplishments. As Participant 10 explained, her struggles with self-control are limited to inter-personal relationships and emotional eating:

> There aren’t too many other areas of my life that require that. I mean, I’m lucky enough to have a part time job where I can work from home and I have the self-discipline to work when I need to work. But, no, I guess I’ve not thought in great length about self-control, but I see it in those two terms: the emotional component in my relationships and my relationship with food. (P10, female, 58)

For Participant 10, working from home requires “self-discipline,” but does not require the same kind of effortful self-control as controlling her emotions and diet. Similarly, Participant 2 stated, “…my self-control isn’t so great is kind of with, like, wine or sweets. But in terms of other times, like making myself exercise and that, I’m pretty good at that because I know that that makes me feel really good” (P2, female, 47). Thus, effortful self-control can be highly domain-specific.

Participants discussed life domains that aren’t seen as requiring self-control as occurring for two reasons: because the outcomes of the activity are not seen as problematic, or because the outcomes of the activity are seen as unacceptably risky. Participant 7 explained how she doesn’t bother to use self-control to stop biting her fingernails because she doesn’t particularly care what they look like; there is no motivation or higher purpose for using self-control:
So, yeah, like there has to be some other purpose. Like there has to be something in you, whereas—I’ll try and give an example. Like I don’t care about my nails, at all, so the idea of not biting my fingers. Like when I’m stressed or whatever, like I don’t really care. Like I don’t have that mechanism in my head saying, “don’t do that, it’s bad,” because I have no desire to get a manicure so to me that’s not something I would have a lot of self-control over. Like my hands aren’t bleeding or my fingers aren’t cut short, but, yeah, I guess that’s sort of—I never really thought about it like that. (P7, female, 25)

Similarly, Participant 16 isn’t tempted by activities that she perceives as overly risky:

I wouldn’t use the word risk because none of the things that I lose self-control with are really that dangerous, like, you know, I’m not going speeding or drinking huge amounts of alcohol or taking drugs or something like that. I’ve never—that’s actually interesting because, I mean, I experimented and I’ve never lost self control with, yes, let’s say with drugs or something like that. (P16, female, 25)

Thus, the borders of self-control can demarcate a zone of safety, a way of avoiding undue risk. One’s perceptions of risks and one’s tolerance for risk have important influences on self-control. Where one defines the boundaries of self-control can be determined by the limits of acceptable risk.

You know I’m trying to figure out how much money to put into my RRSPs right now and it’s a similar situation, right? If you’re a risk-taker, you would put it in a more risky RRSP, right? But if you’re not, then you put it in a more conservative one. So I think that that plays a large part in what kind of self-control you have. (P8, female, 29)

The borders of acceptable risk can change over time. Participant 13 explained how he no longer views violent behaviour as acceptable, although his stance on risky sexual behaviour remains unchanged,

No, I used to be a pretty violent guy at times, which has changed through a lot of work. And I used to be about the biggest male slut in Guelph and that changed because of the woman. Now, if I was single, I’d probably go back to being a slut, but I’d be a loving slut not a violent one. (P13, male, 41)

Furthermore, successful self-control involves balancing risks, to minimize negative outcomes and maximize positive outcomes. This involves knowing how and in which life domains to apply one’s self-control striving. For Participant 7, ongoing success in self-control involves balancing risks and benefits of controlled and uncontrolled behaviour:
I know that at the end of the day if I get 100% in every class it’s not going to mean that I’m a better person if I can’t maintain social contacts. So having that balance between knowing, like, what’s good for your marks and what’s good for your soul, I guess. (P7, female, 25)

When risk is justifiable, self-control is less important than when risk is perceived to be unjustifiable. For Participant 12, her lapses in self-control when she purchased hot tea couldn’t be rationalized, and were therefore a behaviour that she continues to try and change:

No, I don’t justify [buying tea] to myself, I can’t justify it to myself because I know I shouldn’t be. And I’ve been trying, so no, I don’t really justify it to myself, I’m still disappointed that I’m doing it. (P12, female, 45)

In contrast, for Participant 9, uncontrolled behaviour could be acceptable if there was a good reason for it:

And if I’m speeding then it’s like, “okay, I’m speeding,” but I’m justifying it to myself saying, “but I’m late and I won’t speed again.” Or, you know, if I’m going to speed it’s like I’ll watch the speedometer to make sure I’m only going ten over, so if I do get pulled over, no ticket. (P9, female, 42)

Thus, many participants described their lapses in self-control as potentially risky, but not unacceptably so. For example, although she described struggling to keep up a regular exercise habit, Participant 4 reported that her problems with self-control are contained within parameters of acceptable risk:

I am not happy in terms of the way that I am right now but I also don’t sit at home and eat hamburgers and bags of chips and chocolate, I do eat fairly healthy it is just more or less getting a little bit more exercise and what not. That’s the main thing. (P4, female, 37)

Similarly, Participant 9 reported how she kept her losses of self-control within acceptable limits of risk, balancing the risk of losing self-control with the rewards of indulging:

So then it’s okay, then I justify it in a good way and I go, you know, then I didn’t lose self-control because I only bought the one, the one that I wanted, right? As opposed to being there—and I have done this in the past where I look around and I go, “oh, maybe I’ll find a second one,” but I’ve never really bought it because I’m like, “okay, I’m getting a treat; I have to keep it to one.” (P9, female, 42)
The limits of self-control striving are determined by considerations of risk and reward. However, perceptions of risk and reward are not static. Indeed, the extent to which risks and rewards are salient in a given moment depend in large part on the balance between cognitive and emotional control.

**Thinking or feeling: Cognitive and emotional control.** Participants talked about successful self-control requiring the ability to override emotional impulses with cognitive control. Participant 1 stated that self-control involved, “thinking the problem through instead of letting your Rambo instincts take over” (P1, male, 58). In particular, these “Rambo instincts” occurred such that, “when I’m trying to do something and I’ve lost my self-control that I don’t think the—think it all the way through, so I’m making mistakes as I progress” (P1, male, 58). Similarly, Participant 3 explained that self-control involved, “…the ability to reason and think and figure out what’s right and wrong” (P3, male, 60).

When emotions and instincts predominate over cognitive control, there may be little consideration of consequences or risk. According to Participant 5, “I suppose you could think of it as like thinking with your head or thinking with your heart. Some people just make rash decisions. It doesn’t matter. Stuff the consequences. Where some people sit back and think about it” (P5, male, 34). Thus, for successful self-control to occur, there must be a way to maintain cognitive control over behaviour. As Participant 4 explained, “Do something else, try to find something else to do to occupy that moment where you want to have something” (P4, female, 37). Thus, managing emotions so that they don’t interfere with cognitive control is essential to ongoing self-control. Participants discussed careful planning as a cognitive process impeded by strong emotions. For example, Participant 8 explained that before she could make plans following her separation from her husband, she had to get her emotions under control:

I tried to look at the things that made me happy. Like… and it was stupid things, right? I had this one kind of soup that I liked and one day I had it and I actually felt okay after that, so I ate it for like three days in a row and it just made me feel better, right? So it was trying to get over that emotional part of it… (P8, female, 29)

What can make this process of emotional control particularly challenging is that strategies for emotional control often involve loss of behavioural self-control. Participant 10 discussed how:
The determination, like, focus, that kind of thing, yes. It gets—the line gets blurry around things like eating disorders for me, like. I have a lot of self-control in my life, but when it comes to food I’m a very emotional eater sometimes. And the self control is—lots of times I have great self control, but when it’s—when I’m emotionally damaged or vulnerable I can lose that self control. (P10, female, 58)

Similarly, Participant 16 discussed how cognitive control over her behaviour has emotional repercussions:

I tend to be a pretty emotional person on a day-to-day basis and, yes. So if I really want something done then I have to, kind of, just be cold and ruthless and make that decision and then deal with it emotionally (P16, female, 25)

Many participants reported an ongoing struggle between cognitive and emotional primacy in control of behaviour. For these participants, self-control is an effortful process of executive (conscious, cognitive) control over behaviour. However, for other participants, self-control is much more automatic, such that self-control striving is experienced as neither an actively cognitive nor emotional process, but rather something that “happens naturally.”

**Self-control is hard.** In the self-control literature, self-control is usually described as an effortful process, a struggle between temptation and restraint. Indeed, if self-control was always easy, there would be little point in researching it. Self-control as an effortful process was an important sub-theme in these data. Most participants were able to give multiple examples of a time when they had to work hard to maintain self-control or when self-control was seemingly impossible.

When self-control is lost, participants often described the situation as presenting demands that are difficult or impossible to manage. Participant 2 stated that when presented with a buffet table, “Like, when I get in situations like that, I think, oh, my God, I have no self-control, yeah” (P2, female, 47). Thus, successful self-control involves managing impulses to indulge, such that self-control is, “To not jump into something spontaneously when I think of it as needing some self control or self discipline, to wait to make decisions or wait to do something that you’re wanting to get on with” (P12, female, 45). Similarly, Participant 3 explained that self-control is, “…mind over desire, mind over temptation. It’s just mind over temptation. You resist the temptation” (P3, male, 60). For many participants, temptation is an emotional process, whereas “mind” or “self-discipline” are more cognitively controlled processes. Participant 9 described
how waiting patiently to hear about her contract position requires ongoing effort and management of emotions:

Yeah, I have to sit, you know, just sit. It’s not my place right now to risk. And again, the risk is not great. I talk about it at home, like obviously this looms over my head, and I feel depressed sometimes. I’m like, you know, what if, what if, you know, what if not. Then again it’s a whole different scenario in front of me. (P9, female, 42)

Successful self-control, or keeping behaviour aligned with one’s goals, can require ongoing effort. Participant 7 stated that she worked hard as a teenager to get high marks, with the ultimate goal of going to university:

And I didn’t want to stay in the town that I came from, so I wanted to… yeah, so I did my math homework every night, because it wasn’t my strong subject. I mean, I’m more into the sciences and with math, like I could do it, I just really had to work at it. And I finished really well, but it’s because I worked really hard. (P7, female, 25)

Even deciding how and where to use self-control strength can be a struggle. Participant 10 described how debating on whether or not she should assert herself in a difficult relationship was an ongoing challenge. She found herself regularly asking:

Yes, what am I giving up and why am I sacrificing certain…? I should have the right in my own home to say, “I don’t want you to bring that in here.” And yet I zip it and let it happen and then I get angry with myself, because I don’t want it, it’s a pain in my..., you know? This is my house, I pay the rent here, why can’t be the way I want it? So there is that little demon and the little angel on my shoulder having this battle, and I’m stuck in the middle like a little ping pong head trying to figure out which way to go. (P10, female, 58)

Furthermore, figuring out a moment-to-moment self-control strategy can be a depleting experience in and of itself. Participant 16 talked about her experience quitting smoking:

Like, I still—that was one of the hardest things actually was—because usually I guess a tactic for quitting is to distract yourself from it, but when I was studying or something it got extremely hard because it was like, well, I only have a certain amount of time, I have to study, I can’t go watch TV, I can’t go play sports, all these things that, you know, they tell you in the brochures and books and stuff on quitting smoking. So that was really hard. I guess I planned it out to some extent, but a lot of the time I had to deal with it as it came, like what would help me in that situation to deal with that craving or whatever. (P16, female, 25)
Self-control is easy. If self-control is described as effortful striving, then self-control can, by definition, never be easy. However, if self-control is described simply as control of goal-directed behaviour, including both automatic and conscious decisions and choices, then self-control does not have to be hard. The ways in which one perceived a situation can determine whether self-control is hard or easy. Participant 13 explained over time he has transformed his ability to process information such that he no longer experiences many situations as requiring self-control:

…stuff just doesn’t set me off like it used to. So it just kind of seems like maybe dealing with my past and understanding how it affects me, helps me react better in situations most times. And then being out of a bad relationship and just having a different environment just makes everything more natural when anything does happen. But it just seems like stuff isn’t happening any more, it’s like… (P13, male, 41)

Furthermore, when self-control striving becomes habitual, automatically initiating goal-directed behaviour is an undemanding process. Participant 1 stated when changing behaviour, after a period of time, temptation is no longer a problem, “…those things don’t really, you know, perk their head up or anything anymore because they’ve been dealt with and they’re done. And that’s, you know, the best way to think about cigarettes is just forget about them because, well, there is no temptation anymore” (P1, male, 58). For many participants, the process of gaining automatic control over one’s behaviour is gradual, and involves establishing a habit. Participant 6 explained:

I think that initially self-control for me is shorter term but you have to start by exercising a lot of self-control and be very cognizant of things but then once you do it for a longer period of time it becomes more of a discipline, something that I don’t have to consciously think about as often. Becomes a pattern. (P6, female, 36)

Similarly, after establishing a regular exercise habit on weekends, Participant 2 found that self-control was much more automatic, unless something out of the ordinary happened to disrupt the normal flow of events:

No, I think it’s easier now. Yeah, because I think I’ve got it in my head that, you know, unless I’ve got some really good excuse, like I’ve been out drinking until 2:00 in the morning and I feel horrible, like, other than that, no, it’s just this is what I am doing and I need to do it. (P2, female, 47)
However, for some participants, self-control is just naturally easy. “So, you know, something—it might be almost that you have, like, this innate ability to have self control, just like common sense, you know. Like you say, some people don’t seem to have any and other people have a lot” (P9, female, 42). Thus, self-control can be a relatively automatic and effortless process, something that happens below the level of conscious control. Participant 5 stated that he never really thinks about self-control day-to-day because:

…I think it is more like in your subconscious than anything else. Yeah, I mean it is pretty automatic. I mean I can’t say that I’ve sat down for any length of time and gone “oh, I better think about that.” A lot of the stuff is sort of split second anyway and if you sat down for any length of time you are going to—something is going to have happened before you made a decision, it’s like “well that was a bit late.” (P5, male, 34)

Thus, perceptions of the necessity and difficulty of self-control across various life domains differed both within and across participants.

**Discussion**

When defining self-control, many participants discussed starting and stopping behaviour as separate aspects of self-control. Indeed, several participants used different terms to describe these two processes (e.g., self-discipline and self-control). This distinction between starting and stopping behaviour as separate types of self-control is interesting, as it reflects new research showing that inhibitory and initiatory self-control may be separate factors of a multi-dimensional construct (de Ridder, de Boer, Lugtig, Bakker, & van Hooft, 2011). It appears that inhibitory control is a better predictor of behaviours that interfere with goal attainment, whereas initiatory control is a better predictor of desired (i.e., goal-directed) behaviours (de Ridder et al., 2011). Similarly, the concepts of “good” and “poor” or “reflective” and “impulsive” self-control reflect ideas of goal-directed forward planning and hedonic reward-seeking, respectively (e.g., Dvorak and Simons, 2009; Hofmann, Friese, & Strack, 2009). Participants also defined self-control in terms of choices or decisions (i.e., choosing to start or stop a behaviour). These choices occur in a relatively short-term context, although they can have long-term ramifications. Perceptions of agency over choices may depend, in part, on the time available for deliberation and the complexity of the choice. Perceptions of agency over choices may also depend on the motivational context of that choice.
In contrast to descriptions of self-control as relatively discrete decisions or behaviours (i.e., choices, starting or stopping behaviour), participants also talked about self-control as embedded within a longer-term context of goals and guidelines. Self-control is experienced differently in different timelines. In some ways, self-control is ultimately maintained or lost on a moment-to-moment basis. Deciding whether or not to have another cookie or another cigarette, controlling one’s temper in frustrating situations, or studying for a difficult exam, all require moment-to-moment exertion of self-control. In large part, this moment-to-moment view of self-control is what is captured in the self-control literature. Manipulating self-control in a laboratory setting means examining differences in self-control over a relatively short timeframe. For example, in Study 1, participants spent less than an hour in the lab, and changes in vitality, mood, and self-control all occurred within that timeframe. When motivation is manipulated in a laboratory setting, resulting changes in intrinsic motivation and perceived autonomy occur in a similarly short-term context. However, the moment-to-moment view of self-control is also important in a real-life context. Participants reported that understanding and maintaining self-control in the short-term is important to longer-term self-control and goal attainment. These reports reflect experimental evidence that practicing self-control in the very short-term leads to long-term gains in self-control strength (e.g., Muraven, 2010). In contrast, increasing monitoring of self-control in the short-term does not appear to improve self-control strength. For example, Muraven (2010) found that participants who recorded their moment-to-moment self-control temptations in a diary did not improve self-control over smoking relative to a control group.

Thus, although restraining impulses occurs on a moment-to-moment basis, it may be that general self-control monitoring occurs in a longer-term context. Participants reported monitoring and managing self-control on a day-to-day basis and week-to-week basis. Loss of self-control was more often discussed in terms of a period of days or weeks rather than hours or minutes. Similarly, motivation to regain lost self-control was discussed as increasing over a period of days rather than within a single day. In this timeline of self-control, self-control is more important on some days than others and plans and strategies for self-control often occur at the day-to-day level. Of interest, there is evidence that one’s time perspective, or propensity to focus on the future as opposed to the present, interacts with self-control to predict goal achievement. Specifically, Barber and colleagues (2009) found that for students low in self-control, a future time perspective was predictive of better academic success than a present time perspective. This
effect did not occur for students high in self-control. It may be that for those who experience more temptations to lose self-control, considering the future is a good strategy for maintaining self-control.

When discussing self-control as experienced over the course of days or weeks, participants contextualized their behaviour in a framework of goals. Judging the success or failure of a self-control effort relative to one’s goals may take place over the course of days or weeks rather than hours or minutes. Although one’s decision to eat a cookie or not may be a transient decision, participants reported that the degree to which one perceives that eating the cookie “counts” as a loss of self-control depends on considering that single behaviour in a larger context of goal-directed striving.

The larger the goal, the longer the time context in which participants reported experiencing self-control. Value-related goals and long-term health goals all require monitoring over years, and the success or failure of these large self-control efforts was often described in terms of years or decades. Changing roles over one’s lifetime (e.g., student, mother, employee) necessitate different types of self-control, and also change the boundaries or limits of self-control striving. Considering and rationalizing how goals and goal-directed behaviour fit into a lifetime context of self-control is an important part of the narratives people use to describe their lives. Considered broadly, people can describe their lives in terms of self-control and self-control failure.

More than just timelines and definitions of self-control, participants’ perceptions of self-control involved beliefs about the limits or boundaries and difficulty of self-control striving. Broadly, it appears that personal goals and guidelines set a framework for mapping the domains of thoughts, emotions, and behaviours that people consider as requiring self-control. For example, while one person may struggle to control her temper, another may consider that “speaking up” serves a goal of personal autonomy. Thus, the same behaviour can count as self-control success or failure in different people.

Generally, people appear to be motivated to avoid unacceptable risks and seek rewards. However, the specific domains of these risks and rewards depend upon the individual. In particular, participants discussed how they use a boundary of “acceptable risk” to define what counts as self-control and what counts as self-control failure. Thus, risky behaviour doesn’t
always indicate self-control failure or a lack of knowledge about risks. For example, Holmes and colleagues (2008) studied “bareback sex” (i.e., unprotected anal sex) among gay men, and suggest that rather than people engaging in high-risk activities because they do not properly understand the risks, such behaviour reflects a process of informed risk, including strategies for risk reduction, and rationalizing exposure to risk.

One problem with studying self-control in an experimental context is the need to operationalize “self-control failure.” When self-control is defined as performance on a short-term task, relative performance deficits across individuals are easy to identify, but may lack external validity. When self-control is defined as control over unwanted behaviour (e.g., smoking, drinking, dieting), failure can be defined as “number of lapses.” This view allows quantification of self-control failure, but doesn’t assess the degree to which the participant also viewed the lapse as self-control failure. That is, personal boundaries of self-control are fluid, and change according to the stories people tell themselves about their reasons for self-control and their perceptions of the risks related to self-control failure. In particular, participants discussed how perceptions of risk depended on their relative degree of cognitive and emotional control, such that under highly emotional conditions, risks are less salient. Thus, managing emotions and self-control is an intertwined process for most participants. Participants reported that when risks are less salient, motivation to control behaviour disappears (i.e., the boundaries of self-control shift in that moment), and self-control failure becomes more likely.

The more active effort that is required to align one’s behaviour with one’s goals, the more difficult self-control is perceived to be. Long-term attempts at goal-directed behaviour, such as sticking to a diet, exercising regularly, or quitting smoking, can be a daily struggle. Self-control is also perceived to be especially difficult when demands outweigh one’s resources to deal with the situation. However, when self-control striving becomes a habit, less conscious control is required. Participants’ reports on the automaticity of their self-control formed a continuum, from those who reported that self-control was an almost totally automatic process to those who reported that self-control required almost constant effort. Generally, participants who reported that self-control was easy were those for whom self-control was a relatively habitual and automatic process or those who viewed very few life domains as requiring self-control. Participants who reported that self-control was difficult had trouble maintaining habits of high self-control and were trying to control multiple life domains.
In this first thematic area, I examined people’s perceptions and definitions of self-control. These range from immediate control of behaviour (i.e., starting or stopping), to the decision or choice that initiated that behavioural control, to the goals and guidelines that motivated the decision and behaviour. Perceptions of the limits of self-control striving depend on the ways in which one perceives risk and reward. Furthermore, the extent to which self-control is perceived to be effortful or difficult depends both on managing emotional impulses and on degree of automaticity or habit in behaviours related to self-control.

Thus, self-control is experienced differently across time and across life domains. Are there common outcomes of high and low self-control? The next chapter discusses how participants anticipated the outcomes of both successful self-control and self-control failure.
Chapter IX: What Are the Anticipated Outcomes of Having High and Low Self-Control?

When self-control fails, what happens? Similarly, what happens when self-control is high? The next chapter examines the major theme area of anticipated outcomes of self-control. I grouped participants’ discussions of the consequences of having high or low self-control strength into three domains, or sub-themes: emotional outcomes, risk exposure and avoidance, and outcomes related to motivation for self-control management.

Emotional Outcomes

The emotional consequences of having and losing self-control can be complex. Loss of self-control is often associated with negative feelings, such as shame, guilt, or self-reproach. However, losing self-control can also produce feelings of pleasure and exhilaration. The emotional consequences of having high self-control tend to be positive, ranging from low arousal states of calm and satisfaction, to highly aroused feelings of excitement and vitality.

Loss of self-control: Pleasure, exhilaration, guilt, and fear. Self-control is often lost because the motivation to avoid a tempting activity is outweighed by the anticipated pleasures of that activity. Specifically Participant 1 talked about his ongoing struggle with eating and smoking, “I enjoy eating. I mean, I don’t eat because I’m hungry; I eat because I enjoy it. And I don’t smoke because I have to. I smoke because I enjoy it” (P1, male, 58). Similarly, Participant 7 explained how she occasionally lapsed from a long-term vegan diet due to the temptations of frozen dairy:

I was actually a vegan for eight years, but there were times where like—there was a few things I would miss. Like ice cream, I love ice cream and the soy stuff just does not cut it. So I distinctly remember sometimes like I would run down to like Ultra and get a tub of yogurt or ice cream and just eat it in my room and enjoy it and not tell anyone. (P7, female, 25)

Pleasures and temptations are often appetitive, involving behaviours like eating, drinking, or smoking. For Participant 12, a daily cup of tea from McDonald’s was an indulgence she was unable to give up, “Because I enjoy it so much. Yes, and it’s soothing to me, it’s calming to me, it feels—everything about it I love it.” Even though money was tight and her finances would have been more secure without the daily purchase, the pleasure associated with the loss of self-control outweighed her motivation to save money, “Like, I’m here today to make extra money and, you know, that’s throwing money, but for the little bit it is it brings me so much joy” (P12,
female, 45). Similarly, for Participant 16, the temptation to smoke is ongoing because, “…even though I quit it’s still something that I think about and that I, you know, want to do because it always was very pleasurable for me” (P16, female, 25).

Of interest, participants’ discussions of the emotions associated with loss of self-control involved both states of positive mood (e.g., enjoyment) as well as states of high arousal (i.e., rush, vitality, or euphoria). For some participants, loss of self-control can be a revitalizing act; Participant 17 reflected on how during his early adulthood, he preferred not to control his behaviour:

Yes, oh yes. When I was younger, I didn’t. I just, you know, I would lose it and I’d carry with it and I would start doing irrational things; driving wild, acting wild and I just, I didn’t have the…. I guess it may have been hormonal, you know what I mean, that kind of thing, too. Where, you know, you’re racing and your energy level’s so high. Yes, you just let it ride, you let it, you know, and you’re challenging it even, “Come on, bring it on,” kind of a thing. (P17, male, 55)

The rewarding “rush” associated with losing self-control can be ephemeral. Loss of self-control can result in both a thrill of pleasure and self-recrimination, within a very short timeframe.

Yes, so, yes, instead of, you know, a salad or something I’ll have a hot cross bun or a piece of garlic bread or, you know, something like that. And I think for the initial moment, when I’m actually ingesting it, yes, I feel better and it could just be the endorphins, you know, that happen when you get something, a hit of something good, but it’s not long lasting for me. It’s an immediate reward and then, holy cow, it’s almost as immediate the realisation and the, “Oh, crap, did I just do that?” (P10, female, 58)

Similarly, consideration of risks to personal safety can be outweighed by the thrills associated with risky behaviour. Participant 2 explained,

Well, you kind of know in the back of your mind. Like, you’re thinking, okay, this probably isn’t the best thing that I’m doing. Like, certain situations I can think of when—you know, a few years ago with girlfriends where, you know, you’d be out and about and thinking, okay, maybe this isn’t the best situation for us to be in. But not like I would stop it because it was kind of like exciting at the same time, thinking, oh, this is something different and—you know, but a little bit scared as well. (P2, female, 47)
Negative feelings upon losing self-control are a typical occurrence for most participants. Participant 2 stated that when she lost self-control and overindulged in sweets or alcohol, “…after I do that, I think, oh, I told myself I shouldn’t do that; why did I do it? And then you kind of beat yourself up afterwards. Yeah” (P2, female, 47). The emotional consequences of loss of self-control are not always proportional to the “badness” of the behaviour.

I think my definition of letting myself go and having these moments of lack of self control—I think when I look at them objectively it’s not so bad, it’s like, “Oh, you ate a couple of cookies,” you know, that’s not really—you didn’t go nuts, you didn’t, you know, go take massive amounts of cocaine or something like that, it’s fine, it’s just a cookie. But emotionally it feels like a lot and it feels like a big letdown, so… (P16, female, 25)

Indeed, Participant 1 discussed how the ritual of guilt after losing self-control can be viewed as part of self-control itself, “And what is self-control? Like, losing self-control and then flagellating yourself because of it? Is that self-control, the good and bad fighting against each other?” (P1, male, 58).

Negative feelings after losing self-control may arise after a period of reflection. In the moment of violently losing his temper, Participant 13 reported not considering the consequences of his actions, such that, “At the time I’m just wanting to relieve stress, whether it be destroying something or hurting myself.” Once he calmed down, however, the consequences of his temper were salient and associated with negative feelings, “And then the feelings of tiredness and guilt and everything else come in and then you’re just like, ‘Yes well stuff’s broken around the house, my fist is broken, my wrist is bleeding; yes, I’m pretty much done’” (P13, male, 41). Similarly, Participant 14 reported how after losing self-control and snapping at his children leads to negative feelings, as soon as the moment of lost self-control has ended, “Oh you feel horrible, horrible, absolutely, because you know you shouldn’t have done that” (P14, male, 42).

Sometimes, the negative feelings associated with loss of self-control occur over a longer period of time, even as the loss of self-control is occurring. Participant 4 explained how losing self-control related to diet and exercise habits made her, “miserable, miserable…I would be doing things and I knew it was miserable and I was like ‘who the hell eats chocolate chips out of a bag?’” (P4, female, 37). For many participants, the realization that loss of self-control would result in negative feelings was not enough to stop the loss of self-control.
At nighttime I find it harder to resist a carb, like a sweet thing. Once I have a few scoops of ice cream I could see myself eating that whole thing if I didn’t stop myself. So there have been times that I have done that where I want to eat the whole thing and then I see myself going “what? I am not even hungry.” In fact, my stomach is like bursting and full but I could still keep going. (P6, female, 36)

However, for other participants, self-control was less of a struggle, and the negative emotions associated with loss of self-control were hypothetical rather than actual. Participant 5 talked about how for him, self-control is largely automatic, but that he could imagine how loss of self-control would lead to negative emotions:

> I suppose if you went shopping and completely lost all self-control and blew $2,000 in the mall, I suppose you could lose self-control there but I can’t say that that has ever happened. [laughs] But you could regret some things like “oh, I should have never bought that.” (P5, male, 34)

More than just negative feelings about losing self-control at a specific point in time, participants reported that loss of self-control was associated with fear of a generalized loss of self-control. Participant 6 stated that when she loses control over her diet she thinks, “‘Wow! It is going to be really hard for me not to resist eating foods like that again.’ Do you know what I mean? I will just think of it and I will go, ‘oh gosh, long term. I am setting up a bad pattern’” (P6, female, 36). More than just fear of ongoing loss of self-control, participants reported anxiety about the loss of self-control spilling over and contaminating other life domains. Participant 16 explained how she was running out of ways to deal with the ongoing stress of graduate school:

> But then lately I’ve started smoking again, so, here and there because I’ve been controlling both the eating and the school, so now I’ve run out of that self control and, I mean, hopefully I can add that in, but I don’t know what the next step—I’m going to turn to drinking or something, I have no idea. (P16, female, 25)

**Successful self-control: Calming, thrilling, and pressurizing.** Similar to the mixed emotional consequences of loss of self-control, having high self-control was associated with both positive and negative emotional outcomes. Some participants reported that having high self-control could lead to a meditative state of calm. For Participant 9, self-control means having a sense of calm or contentment such that she doesn’t worry about the pressures of consumerism and what others are doing, “Yeah, very, very calm. Like to me, it doesn’t matter, people can be
wearing or having the best of things in front of me…” (P9, female, 42). Participant 17 explained that when he gained more self-control in early adulthood:

Well, first of all, it was like an, “aha.” You know that “aha” you take in psychology, and it was relaxing, my heart rate went down; I knew that I was on the right path and I was heading somewhere better. And you know, maybe it wasn’t perfect, and what is? But it seemed better than where I was going. (P17, male, 55)

In contrast, for other participants, the positive feelings associated with successful self-control were more arousing, such that self-control resulted in feelings of exhilaration. These highly aroused positive mood states are similar in nature to the concept of vitality, or a feeling of aliveness and positive energy. Participant 4 reported that the rush of lifting weights was addicting, such that for a long time she worked out every day, “It was just the adrenaline, the adrenaline of being able to walk into somewhere being comfortable and happy and being able to lift weights” (P4, female, 37). Similarly, Participant 14 explained how after negotiating between the union and the company, he felt, “Well kind of revved up because I really enjoyed it” (P14, male, 42). Participant 16 discussed how successfully practicing self-control can cause a feeling of excitement:

But it’s almost like a rush, I guess, is overcoming all these instincts. You know, like, when I think of food for example, I mean, that’s such a, I guess, almost primordial or primitive instinct, right, is just to eat as much as possible because your body is trained to always get food and… (P16, female, 25)

However, not all instances of high self-control are associated with feelings of excitement or vitality. Some participants reported that successful self-control can lead to feelings of competence, which produces positive emotions related more to self-esteem and satisfaction than vitality. Participant 8 described how, after her divorce, she found pleasure in learning new skills and engaging in effortful self-control:

And I would say recently, I feel in control too. I mean, like I said, I own my own house, I pay all my own bills, I don’t need to rely on anybody for anything. I got a great deal on this house and I’m actually renovating this one now with plans to sell it too. So it’s been fun, it’s been a lot of work, but it’s had a good pay off. It’s almost like a new-found hobby for me that I don’t know I would have found had I not gone through everything.

Thus, positive feelings may result from effortful control of behaviour in order to meet goals.
It’s when I feel like I have been able to not necessarily control but put effort into something and then see results that I feel good about myself. So it’s not so much linked to control as it is effort, but effort to me…controlling something does require effort so by default… (P6, female, 36)

However, the feelings of competence and self-esteem associated with successful self-control can occur even when self-control is externally, rather than internally, regulated. Thinking back to his time in military college, Participant 3 reported, “And maybe it wasn’t so much self-control as it was self-discipline or an imposed discipline, but, boy, I felt good. You know, it was—I was proud of who I was” (P3, male, 60).

Prolonged self-control striving can bring positive feelings and build meaning. However, it can be difficult to curtail habitually high self-control, such that even planned self-control breaks (e.g., vacations) end up being viewed as self-control failure. Participant 6 explained how her habitually high self-control is:

Yeah, maybe too much though—to the point where I think that it sort of limits my life to a degree and my ability to really go out and enjoy life because it is like “oh, that is too expensive.” I feel like if I went on a vacation I wouldn’t really be able to enjoy it fully knowing that each footstep I am taking in the sand is probably costing me $300. Do you know what I mean? (P6, female, 36)

Thus habitually high self-control can lead to feelings of missed opportunities and regrets for actions not taken.

I don’t say what’s on my mind. I was raised really to not talk back. If I wanted to talk back—my mother used to say I would go in the bathroom and she would hear me in the bathroom going, “grr, grr, grr,” like, as young person. But I think it’s in your nature whether you throw it out there without thinking first or whether you’re more reserved and bite your tongue and get ulcers. (P12, female, 45)

Practicing lifelong self-control over her behaviour and emotions means that for Participant 12, avoiding conflict with others is easier than speaking up for herself. However, she reported that this ongoing self-control has led to feelings of stress and pressure, such that when she “bites her tongue”:

Oh, I probably regret, I stew, I clench my teeth, like, not at work but, I mean, big issues. I’m not talking over the little guy who cut me off, but probably it does me more harm to not speak up and that’s what I’m learning. Because I will tend to
stew about it or regret and think, “god, I should have said, you know, this and....”
Yes, so I think it does, it’s detrimental to my health I think. (P12, female, 45)

Similarly, Participant 10 discussed how the self-control gained through an abusive past restricts
her current ability to stand up for her values and beliefs:

   When I use a lot of self-control, there’s an element, for me, of, “I’m sacrificing
too much for the sake of keeping peace.” And that’s another component of my
childhood, because my mother was a rageaholic, my father...as I was at a very
young age said, “do whatever it takes to keep the peace, if she says black is white,
you agree with her.” And so I learned very early to please other people at my own
expense. And so I do sometimes think all of this denial and self control and
holding back is somehow compromising me in the long run, because of that
history, because I’m not assertive, I go from here to aggressive, but I’m not
assertive, which is what I really want. But, yes, it’s—I do sometimes feel
compromised by how much self control I do use in a conflict like that, because
then I think, well, I’m being stepped on, I’m being used, I’m not standing up for
what I really do believe in. (P10, female, 58)

   Both high and low self-control can lead to positive emotions ranging from calm to
euphoric. However, loss of self-control is associated with feelings of guilt, disappointment, and
anxiety whereas high self-control can provoke feelings of constriction, stress, and pressure, the
feeling that one is risking too much by controlling one’s behaviour.

Risk Exposure and Avoidance

   The second sub-theme related to outcomes of self-control and self-control failure that I
identified was risk exposure and risk avoidance. In contrast to the ways in which participants
discussed emotional outcomes, discussions of physical or tangible outcomes occurred in terms of
risks and rewards. That is, whereas participants tended to discuss emotional outcomes in terms of
actual experiences, discussions of physical outcomes tended to be more probabilistic, in terms of
potential risks and rewards. For example, losing one’s temper will result in feelings of shame and
guilt, but might result in physical harm (i.e., a risk to personal safety). Similarly, eating a sugary
snack will result in feelings of pleasure, but might result in indigestion and blood glucose
problems (i.e., a risk to health).

   Losing self-control: A risky business. When self-control is unsuccessful, there is
potential for loss, and therefore a risk. Risks stemming from low self-control can be fairly
benign, or can involve situations of life and death.
For many participants, the possibility of negative health outcomes such as weight gain, illness, and smoking-related diseases were a salient risk of losing self-control. Participants discussed how considering risks can motivate long-term behaviour change; for example, Participant 17 explained why he started to control his anger as a young adult, “Well, I knew that it was going to be bad for my heart. I knew it was going to be bad for my relations with people and so I said, ‘no,’ and I just said, ‘no,’ and I shut it right down” (P17, male, 55).

Long-term self-control can become easier as the risks become greater. That is, the intensity of a health risk can influence the strength of motivation required to avoid that risk.

I’m a juvenile diabetic, right, I was diagnosed when I was 11, so self-control I learned that quickly at a really young age. So I needed to know that that piece of cake might look really good to eat right now, and I may not have the self-control to not touch it, but then I suffer the consequences later, right? And I’ve learned that enough times that okay, if you’re going to have that piece of cake, then you need to take more insulin or you need to go run around the block for an hour… (P8, female, 29)

I mean, if you say like, “I’m not going to smoke except when I’m stressed, that’s a higher—a lot different motivation than saying, “Like my grandpa died of lung cancer, I don’t want that. I’m never doing it again.”” (P7, female, 25)

However, just because one is aware of the health risks of losing self-control, one isn’t necessarily motivated to exert self-control strength to control the risky behaviour. Behaviours that lead to long-term, rather than immediate, negative consequences can be particularly hard to control. Participant 12 was able to list the risks of drinking sweetened tea daily, but was unable (or insufficiently motivated) to stop drinking the tea:

A risk? Well, yes, it isn’t good. It’s—white sugar is bad. You know, and as you get older you gain weight and you can’t get this off [gestures to stomach], which isn’t good for your heart. You know, when I brush my teeth my arm shakes now. (P12, female, 45)

Why do people persist in risky behaviours instead of controlling them? It may be that the relative insignificance of losing self-control “just once” allows us to rationalize individual losses of self-control, even while being aware that those losses are contributing to increased risk. Participant 3 stated:
But it’s a thing where I know it’s wrong, I know I shouldn’t be doing it, but I say, aah, one little piece of cake, one more cigar, you know, it’s not going to hurt me, so... Ultimately it has hurt me, you know, over the years…. (P3, male, 60)

However, even when a health risk could have immediate life or death consequences, self-control to avoid that risk is not always possible.

For me, the food thing is probably more responsive to being tired and being hurt, being physically in pain... I just—I can’t, I just can’t be strong—with the food the loss of self-control is very unconscious. It’s a spontaneous spur of the moment, “I’m just not going to eat right right now.” And that’s not safe for me, because I am diabetic and I need to eat properly. (P10, female, 58)

Sometimes risks become more salient after a period of reflection. Participant 13 discussed how he reduced his violent behaviour after considering the safety risks of unrestrained aggression and violence:

But no, I used to be more violent, not as in hurting women or anything, but throwing stuff, yelling and screaming, breaking things. If it’s a guy then it’s like, okay well I have no qualms about getting physical if he’s threatening me or my family or loved ones. But I’m starting to realize too that you can’t just pick people up and throw them because usually you have to talk to someone with a gun after that. (P13, male 41)

**Successful self-control: Correct decisions avoid risks and gain rewards.** High self-control is not a risk-free proposition. In particular, there is post-decision risk associated with self-control, especially when the outcomes of situations requiring self-control are uncertain. However, when decisions requiring self-control are successful, people are able to avoid risks and gain rewards. Maintaining self-control across diverse life domains means avoiding risk across diverse life domains.

Because self control, of course you want to stay out of trouble with the law. You want to stay out of trouble, you know, so you don’t get hurt and not take too great a risk, so that you preserve your life and then, beyond that, you get into smaller things, like so you get along with people and so that you can maintain your job. (P17, male, 55)

Participant 1 discussed self-control as a safety net, demarking the boundaries of societal comfort or normative behaviour, “Yeah, yeah, because it’s where you draw your boundaries on the
outside and you can be self-controlled inside your envelope or whatever. Yeah, a safety net for sure because, like, the boogie man lives out there” (P1, male, 58).

High self-control can lead to economic rewards (and avoiding financial risk). Controlling oneself at work is essential to keeping a job. Of interest, the financial rewards of self-control are not always as satisfying as the rewards of other kinds of self-control. In comparison to using self-control to exercise daily, Participant 4 explained that using self-control to work overtime at a factory was only briefly exciting:

It was only when I got the paycheque because I was younger in my twenties, again, I would get that paycheque, and I was like, “wow! I can’t believe I just…,” but it wasn’t so satisfying because it wasn’t a career, it wasn’t what I wanted to do with my life. So, no. (P4, female, 37)

However, financial self-control can also bring rewards in other life domains, including a general reduction in life stress. Participant 11 discussed how teaching her daughter how to manage her finances has had a positive impact on her life, in spite of initial misgivings:

And during the time she hated it, because she said, “well, I want to go out on the weekends with my friends,” and I’m like, “well, go.” And she was like, “I have no money; I’m saving.” But when she graduated and she was the only one in her class with no OSAP loan, no nothing, she’s like, “wow, this feels good.” Yes. And then not too long after that she got a job and it was decent paying, and about eight months later she went out and bought, like, an $8,000 car, paid cash. Yes. So that was nice. (P11, female, 46)

Even when using a lot of self-control, it is impossible to completely avoid risk. Major life decisions come with associated risk, as outcomes may not always unfold as planned.

I think there is an element of risk in it in no matter what you do, especially in big decisions, like selling the house and then I had met [my new wife] and an even bigger decision was coming here. So I thought, “do I stay in the UK or do I come here?” It had its down side. Every time I went for—when I first got here, every time I went for a job it was like, “oh, you’ve got no Canadian experience.” So you’ve got to say, you make a decision, but you’ve got to run the risk of the consequences afterwards. (P5, male, 34)

Similarly, Participant 9 explained how her decision to stay with a job that allowed more flexibility but less stability involved ongoing risk, and that managing this risk involved ongoing self-control striving:
Yeah, because it’s my… again, it’s my choice. It’s my decision that I need to do this. I could have done a different job, where it paid more, but again, because of the family situation, I had to make that decision, I mean the self-control thing and say, “you know what, I will not look for a job, even if it’s with my resume, my work experience, I will not look for a job which demands more of my time.” So I see that again as self-control. (P9, female, 42)

For example, as circumstances change, post-decision risks can arise that weren’t obvious at the time of deliberation.

Maybe if an opportunity comes up, like I’ve bought the DVD and two days later someone calls me up and says, “girls night out we’re going karaokeing,” you know, “if you have 20 bucks come with us.” And I’m like, “I just spent my 20 bucks.” And then I kick myself going, “but I didn’t know, and I made this decision two days ago, so now I have my DVD and they’ll have to go out without me.” (P11, female, 46)

Post-decision risk is especially salient when outcomes are uncertain and decisions involve major life changes.

I basically moved from Manitoba where I was living in two weeks. I had two weeks to decide, after the accident, what I was going to do. So I had sold all my furniture, everything, and I came here to Guelph to stay with family. And this is basically like my starting up of my new life type of thing. But it was a risk with my ex because it felt really good to have that person, to have those starting goals with someone, because I have things in life that I want to do. And me having to break up with her was a risk because, now that I’m working, I feel like—Plenty of Fish—I’ll never go on that site ever again. So I can tell you a few other stories if you want, to this. But it was a risk just because I’m 31 and I mean I’m ready but it’s not there. (P15, male, 31)

**Motivational Outcomes**

Self-control is not lost or gained in a vacuum. Rather, consideration of one’s past and future self-control requirements shapes one’s current self-control striving. The third sub-theme concerning outcomes of self-control and self-control failure that I identified relates to motivation to use or actively manage self-control.

**High self-control: Making meaning or constricting wellbeing.** Using a lot of self-control can both increase and decrease subsequent motivation to use self-control. High self-control can bring feelings of meaning, such that self-control struggles become part of a narrative of ongoing success. Participants reported that successful self-control striving gives their lives
meaning. The process of setting and reaching goals provides a positive narrative for one’s self-control efforts. Even when self-control is externally regulated to some degree, behaving in accordance with norms and rules can lead to feelings of self-esteem, personal pride, and meaning. Participant 3 explained how during his time in military college, misbehaviour was punished with running laps of 5 miles before breakfast:

Yeah, and you could get 10 circles, which meant you were out there for two mornings in a row to work those off. But there was that discipline. And maybe it wasn’t so much self-control as it was self-discipline or an imposed discipline, but, boy, I felt good. You know, it was—I was proud of who I was. I still am, but for different reasons. (P3, male, 60)

Participant 4 looked back to a period of her life in which she attended the gym regularly as a time of high self-regard. In particular, she reported that having high self-control was not a risky proposition for her,

No, my life was amazing. I had a great life, back then. I felt a lot better. Yeah, I didn’t have any problems. It was probably the best time in my life in terms of how I felt about myself and what not, but, you know. (P4, female, 37)

Feelings of meaning and self-worth appear to be reinforcing, such that people are motivated to seek out situations that provide meaning, even if those situations require a lot of self-control. Participant 14 discussed how his work as a union negotiator required a lot of self-control, but also brought meaning to his life:

At the end of it I felt it was a day’s work and it was great. And sometimes you get stuff you never expected to do, you’re elated. Sometimes it’s just frustrating and I had to keep grinding away at it, but knowing that it’s out there, you can get it, you’ve just got to negotiate your way towards it and get enough support from the company or the membership to make it happen. (P14, male, 42)

Some participants reported that certain kinds of self-control are more likely to lead to personal growth and meaning. Participant 17 explained that using self-control for moral or ethical reasons gives one, “Some kind of moral, some kind of a, you know, a reason to be here, of course, yes” (P17, male, 55).

Of course, high self-control doesn’t always build feelings of meaning and value. Indeed, highly controlled behaviour can lead to feelings of being constricted or confined by one’s self-control efforts. After “too much” self-control, participants reported feeling the need to lose
self-control as a break or reward. That is, many participants reported that self-control management involved balancing feelings of constriction with the relief experienced through losing self-control and indulging in a rewarding activity. Participant 7 described how she plans her day to balance the need to study, motivated by a desire to do well in school with a need to relax and stop working, motivated by wanting to avoid a sense of over-control or constriction:

Well, that’s funny, because my—I’m sitting there thinking what am I going to do for the rest of the day. Well, in terms of self-control it’s like I was going to go study for a couple of hours first and if I do really well then I would go shopping, instead of saying oh, screw it, I’m just going to go to the mall and then come back later and just cram. So that’s sort of what I’m thinking toward, because I really want to do well in this exam, but I kind of don’t want to hate my life today. (P7, female, 25)

Thus, setting personal rules and guidelines can help people avoid risk and build meaning, but can also restrict the potential for positive experiences.

Because if you make a bunch of rules—which is what I think, you know, makes up self-control—depending how strong they are, you may not bend them and then you’re going to miss an opportunity or you’re going to miss something, you know. Like if you give a curfew, for example, you might miss something that happens later on in the night. (P11, female, 46)

Externally imposed self-control pressures, including social norms and rules, can limit the ways in which one perceives the world. Some participants reported that an overly controlled view can lead to a distorted image of reality. As Participant 1 explained, “I mean, sometimes you’ve got to abandon your life to no control because, you know, if you’re so squinched up with rules and regulations and you’ll see—you won’t see the 99 percent of the world that goes on around you, right?” For Participant 1, high self-control could constrict one’s worldview, leading to a situation where one’s behaviour is neither autonomous nor even authentically human, “Is that what losing self-control is, giving yourself up to everybody else’s rules? Yeah. Yeah. Working within the system. You know, like a good little robot” (P1, male, 58).

Thus, high self-control can promote feelings of meaning that motivate further self-control striving. However, high self-control can also be stressful and constricting, reducing motivation to engage in further self-control efforts and increasing motivation to lose self-control.
**Low self-control: Rejuvenation with a chance of spillover.** Sometimes, loss of self-control can be a planned exercise in replenishment, a reward or break. This may occur due to previous self-control depletion, and may result in an increased ability for future self-control strivings. However, if this loss of self-control remains unchecked, rather than replenishing future self-control, losing self-control in a specific situation as a reward or break can lead to spreading loss of self-control over time and across life domains.

Many participants discussed how periods of low self-control can occur after periods of over-control. Participant 10 stated, “…when I’m tired and in pain it doesn’t always come together. Yes. And there are some times when I just feel like, ‘what the hell?’ Because I reach a point of, “oh, I’m so tired of being good, I’m so tired of being good, when can I stop being good for five minutes?” (P10, female, 58). Reducing self-control efforts can act as a reward for “being good.” According to Participant 9, after spending money on an indulgent purchase, she uses the idea of the loss of self-control as a reward for good behaviour to help herself cope with guilt over uncontrolled behaviour:

> Then I have a little monologue and I, kind of, go, you know, “maybe I should’ve, you know, not bought it because....” And it’s like, “I need that money next week because I’m due for an oil change and, you know, it’s not in the budget so I’ve been taking it out of that miscellaneous account and....,” you know. I could have—like, I could buy this DVD as well as something else next week for $20 or the week after for $20, but instead I need that 40 for the oil change. And so the practical side of me is going, “don’t buy it or you shouldn’t have bought it, you’re bad, you’re wrong.” And then a part of me is going, you know, “I’m a good person, you know, I’m there for my kids, I’m there for my man, you know, I go to church, I live by the laws, I am entitled to this, I deserve this, someone needs to reward me.” (P9, female, 42)

However, using periods of low self-control as a reward or break is not always planned behaviour. Instead, specific “relaxing” situations can trigger loss of self-control.

> …through the week I could go to my boyfriend’s house and he’ll sit there and have a glass of wine and I’ll be like, no, don’t want it, you know. But Friday night, look out. Like, I’ve worked all week. Okay, the bottle gets open and, like—and away you go. (P2, female, 47)
Then 10:00 the kids are gone, the kids are in bed and my husband is sleeping. I am by myself. I need to relax. I’m like, ‘aah’. (P6, female, 36)

The rewards offered by a favourite indulgence can help replenish self-control in other life areas. Participant 12 stated that the temptation of buying hot tea is impossible to overcome because, “…it’s so soothing to me when I get to work—I have a hot drink, it lasts me all morning, I’m British, so I need my tea” (P12, female, 45). Impulses to lose self-control are harder to overcome when self-control has been depleted. Participant 7 explained that resisting urges to indulge were easier when she hasn’t had to previously use much self-control over her emotions or behaviour:

Like if I feel—if I’m not stressed or life is generally good or depending on how severe it is, like yeah I’ll do it, but if I’m like angry at the world or I’ve been overworked and I just want to do something different or have that impulse then sometimes I’ll be like, “okay, I’m gonna.” (P7, female, 25)

In contrast, in periods of stress, Participant 7 reported that, “Oh, I know I cry a lot more, waaa. [laughs] Or just like wanting to have that escape I guess, like doing something completely different” (P7, female, 25). Thus, periods of low self-control can act to regulate emotions and provide respite from the pressures of goal-directed behaviour.

However, sometimes a “replenishing” loss of self-control occurs for longer than planned. Loss of self-control can also spread from one life domain to another. Participant 2 explained, “I’m just one of those people that if I don’t exercise, I don’t feel well. I feel sluggish and draggy and then that makes me tend to eat even worse when I’m not doing that” (P2, female, 47). Thus, when self-control striving is reduced in one life domain, overall self-control strength can be affected. Participant 3 described how when he retired from his work as a police dispatcher, which had involved a great deal of self-control, he developed new problems with self-control in other life domains:

But the dispatching was—yeah, now that I think about it, yeah, that was maybe a very stressful part of my life. But then I didn’t smoke. And I probably weighed about a hundred pounds less than I do now. Like, I was a skinny guy. So that it’s subsequent to leaving the police service that that I put on my weight. (P3, male, 60)
In addition, loss of self-control can spread from a specific, planned break to a period of ongoing low self-control. Participant 5 explained how once she stopped attending the gym regularly after moving to Guelph, “I lost all control, and it just got worse and worse and worse until I didn’t go anymore” (P5, male, 34). If the loss of self-control is extreme, realigning one’s goals and behaviour can be very difficult. Participant 1 described how one may not be able to regain self-control on one’s own, “Yeah, because there’s people that give up self-control and then they have to get a psychiatrist to help them find it again” (P1, male, 58).

Participants described how both high and low self-control can motivate self-control striving and self-control failure. Successful self-control can build feelings of meaning that make self-control easier, but using “too much” self-control can be constricting and make loss of self-control more likely. The act of losing self-control can be replenishing, making subsequent self-control easier. However, loss of self-control can spread across life domains, such that small indulgences can result in a general loss of motivation and self-control failure.

Discussion

According to my thematic analysis, participants’ discussion of the main anticipated outcomes of self-control, regardless of its success, involves emotions, risk exposure, and motivation. People often lose self-control because it feels good. Thus, loss of self-control may not always reflect lack of goal-directed behaviour, but rather a shifting of motivational priorities. That is, although participants anticipated that loss of self-control would result in feelings of guilt, shame, and recrimination, the anticipated positive emotions associated with “loss” of self-control were often more salient at the moment that self-control was lost. However, whereas anticipation of positive feelings may lead us into temptation, participants reported that the negative feelings associated with loss of self-control motivates a desire to realign one’s behaviour with one’s goals. Negative feelings may occur immediately upon losing self-control, or may occur after a period of reflection. Of importance, negative feelings related to self-control failure are not always sufficient to regain self-control. Instead, some participants reported experiencing a process whereby negative emotions related to a specific loss of self-control spread to a more general fear of loss of control.

Why is it scary to lose self-control? The ways in which people define self-control, including related goals and motivation, stems from their assessment of the risks and rewards
associated with different choices. When people lose self-control, they expose themselves to risks of negative outcomes that they typically try to avoid. For example, eating more than planned carries a risk of indigestion for some, or severe glucose management problems for others. When risks are perceived to be greater, self-control is typically easier. The exception appears to be behaviours that lead to short-term pleasure and long-term risk.

The balance of pleasure and risk cannot always be logically resolved. Zajdow (2010) suggests that an ethics of pleasure underlies intoxicating behaviours, such that considerations of expected rewards (e.g., the euphoria of opiates) cannot be described in the same narrative as considerations of addiction and dependence. These strategies for risk management are neither completely rational nor completely irrational. Rather, everyday risk management relies both on cognitive and emotional aspects, considering and rationalizing risk using facts and intuition (Zinn, 2008). Based on participants’ discussions of the risks and rewards of losing self-control, I believe that an ethics of pleasure may also be applied to favourite temptations, not just those that provide intoxication. Whether it was the “joy” of a daily cup of hot tea or the “pleasure” of smoking, many participants discussed how they feel drawn to the positive emotions they experience through losing self-control in ways that they can’t rationalize except by discussing anticipated pleasure.

Participants’ discussion of the anticipated outcomes of successful self-control covered the same dimensions as loss of self-control. When behaviour is sufficiently aligned with goals to “count” as self-control, participants reported positive emotional states, ranging in arousal from calm and satisfaction to the vitality of a “rush” of adrenaline. Of importance, participants attributed the positive feelings from successful self-control both to the controlled behaviour itself (e.g., “exercising makes me feel good”) and to the ways in which that behaviour allowed them to achieve valued goals (e.g., “exercising makes me a good person”). Of interest, participants discussed emotional states similar to vitality when discussing outcomes of both high and low self-control. Some participants reported that losing self-control could provide a sense of excitement and exhilaration, a risky thrill of vitality. Other participants reported that using a lot of self-control could be revitalizing, stimulating feelings of interest and enjoyment. Thus, there was no clear evidence that vitality is an experiential barometer of self-control strength. Rather, some participants appear to seek feelings of vitality, whereas others prefer less highly aroused states of calmness and competence.
Many participants expected that successful self-control would not lead to solely positive emotional outcomes. Participants discussed how feelings of stress and “over-control” may occur when self-control is particularly challenging, or when they are unable to let go of control and relax. It appears that an inability to relax and feelings of resentment are among the downsides of good self-control.

Baumeister and Alquist (2009) reported, “the most important cost [of state self-control] appears to be the depletion of limited self-control resources” (p. 115) whereas “trait self-control seems an unmixed blessing” (p. 126). In contrast, my findings suggest that high trait self-control may come with an emotional cost. Years of financial monitoring may make it impossible to enjoy a vacation. A lifetime of careful emotional control may make it difficult to find a healthy give and take in a relationship. A habit of waiting patiently may result in lost opportunities. If self-control is considered in terms of competing and conflicting goals, then high self-control can be an unmixed blessing only to the extent that people are able to organize and prioritize these goals. Furthermore, although participants reported that successful self-control allowed them to avoid risks and attain goals, every decision carried an element of risk. Often, one can’t know if one is making the right choice until it’s too late to change one’s mind.

In addition to emotions and exposure to risks, participants discussed how self-control leads to motivational outcomes. Successful self-control can motivate further self-control striving. Participants explained that the feelings of meaning and personal worth they experienced upon using self-control and attaining goals reinforced the need for future self-control efforts. In contrast, successful self-control can also motivate self-control failure. Participants described how they balanced self-control striving with planned “breaks,” using loss of self-control as a reward for good behaviour. Participants believed that losing self-control could replenish self-control motivation and ability. However, this was only the case when the loss of self-control was kept within certain limits or when loss of self-control was planned. When loss of self-control expands from a planned reward to a generalized loss of goal-directed behaviour, or when self-control failure occurs in spite of active efforts at behavioural control, participants reported that the result can be frustration and a disinclination to try and regain self-control.

When people lose self-control for a short period of time, they may feel replenished and rejuvenated. However, as when a holiday meal spills over into a holiday week, then a holiday
month, giving up self-control for short-term reward and relaxation can spill over into a prolonged period of low self-control. As with emotions and risks associated with high and low self-control, the motivational outcomes of self-control are complex. Particular motivational states do not map neatly to either periods of high or low self-control. In the next chapter, I more closely examine these motivational states, investigating internal states that deplete and replenish self-control.
Chapter X: What Are Internal Attributions for Self-Control and Self-Control Failure?

For many participants, successful self-control ultimately comes from within. The largest theme I identified from the data comprised internal attributions for self-control and self-control failure. The ways in which people perceive and define self-control interact with accounts of replenishing internal systems (i.e., learning and experience, goals and guidelines for self-control, autonomous experiences) and depleting internal systems (e.g., perceived lack of resources, loss of agency, disregarding goals) to shape attributions of self-control striving.

‘This is Why I Can Do It’: Internal Attributions for High Self-Control

I organized participants’ internal attributions for successful self-control into three sub-themes: learning and experience, goals and guidelines, and agency and autonomy.

**Learning and experience.** Most participants attributed their self-control to a lifetime of learning and experience. “What is self-control? Is it really your learning experience through years and, you know, like, where do you make your logic choices? From past experience, right?” (P1, male, 58). Self-control comes from experience; by practicing self-control and sometimes failing, people can learn more successful strategies and tactics. “I think that the more that you’re exposed to, the more that you’re able to be in—or the more self control I think that you have in the end, definitely” (P15, male, 31).

Self-control also comes through developing a set of values and principles, both through childhood experiences and through adult goal setting.

Based on what the values are as, you know, were given to me as I was growing up, and based on experiences from what I’ve seen or heard from people around me, I would base my judgment on that. And sometimes, you know, you don’t have any of those—either you don’t have those as guidelines, then you would do what you think is best at that moment and then say “okay, if it goes wrong, it goes wrong, I learned from this experience.” If it doesn’t go wrong, then at least you know it was the right decision at the time. (P9, female, 42)

Participants described sophisticated lay-theories of self-control development, such that general rules learned as a child provide a skeleton framework for self-control. Participants explained how, with age, personal experience builds on top of these self-control “basics.”

I think it’s learned from, yes, from your parents if you’re lucky enough to be raised by your parents, you know, not everybody is... But I think the family values
you learn while growing up. Or church if you attend church and school also. So it’s not just home, yes, yes. (P12, female, 45)

Predominantly from our parents while they’re raising us, and then of course I think as we grow and we get our own ability to form opinions, it probably comes from media or just our own way of thinking. Just like as we age we learn to, like, dress ourselves and we know to dress, you know, a certain way in the winter versus summer. (P11, female, 46)

Initially, self-control frameworks come from, “…like things that are indoctrined into you when you’re a kid, like you learn don’t talk to strangers and things that are bad for you…. At least in early adulthood, these childhood guidelines serve as a template for adult self-control. Participant 13 explained that for successful self-control to occur:

There’s just got be a little switch in the brain that clicks on and stops you from doing something you absolutely know you shouldn’t. I mean a lot of it might be ingrained from upbringing too, like, how you were raised. Like I had, not that I follow it now, but I had a very religious upbringing, so that made me think twice about a lot of things, earlier in life anyway.

Thus, people’s childhood experiences can define where they set the limits of acceptable risk, or the limits of self-control. After childhood, successful self-control depends on being able to set appropriate goals and guidelines for one’s own behaviour.

I think it probably is a learned behaviour from your parents and the people that you grow up with. I think that it probably decreases when you’re in your teenage years, because you’re influenced severely by your peers. But I also think that it’s based on experience and your ability to accept risk, right? (P8, female, 29)

I think it’s, well, learning, experience—I don’t think its like if—I don’t know how some people don’t seem to have more —uh—seem to have less self-control than others in what they do in their life and then they’ll sit back and complain when they’re fifty. It’s like well you had the choice. I don’t know, they’ll sit back and go “oh, I’ve got nothing.” It’s like “well you blew all of your money on drinking and gambling,” or something. It is like “you had a choice; you could have gone either way.” (P5, male, 34)

Figuring out what you want to do, what consequences you want to avoid, and creating a system of supports and plans to achieve those goals, can create a foundation for successful self-control.

**Goals and guidelines.** Where do goals for behaviour come from? How do goals translate into successful self-control? Participants described forming goals and guidelines based on both
rational and ethical/moral considerations (i.e., logic and values). Once goals are set, there is a general strategy of self-control. However, being able to implement goal-directed behaviour involves an often-complicated set of tactics. These strategies and plans for goal directed behaviour are attributed as the proximal basis of successful self-control.

**Setting goals.** Short- and long-term goals are subjective, and depend in large part on value systems. Acting against one’s conscience can be a very depleting activity. Similarly, it can be very easy to act in accordance with one’s values. Participant 1 described how he has no trouble avoiding fast-food in general and McDonald’s in particular, because of his values.

Oh, just their corporate practices and I know the restaurant business and I know what they’re selling. And, you know, they started selling those things at 12 cents each and they’re still worth 12 cents each. And more beef and more cows are being ground up and fed the Amazon. You know, that whole thing, it’s like a general thing and it’s developed over the years and—like, it didn’t start out with just McDonald’s. It’s just they’re the biggest perpetrators of the crime. (P1, male, 58)

Values-based goals involve trying to bring one’s behaviour closer to that of desirable models and away from that of undesirable models.

Yeah, like I don’t know, in a perfect world I could be really happy about myself and be like a socialite and get paid for it, la, la, la, la, la. But I know that that would not speak—like when I’m 30, I probably would not feel too good about myself and not having that self-control. Like self-control for me, it shaped more like the kind of person I want to become. It’s like the whole inner dialogue. It’s like, “you shouldn’t do that.” It’s like someone is watching out in my head. (P7, female, 25)

Thus, one’s conscience or inner dialogue may serve as a monitoring system for self-control. As Participant 12 stated, one’s conscience determines the limits of acceptable behaviour, “And I think if you go past what your conscience tells you is okay then you’re, kind of, losing a little bit of self discipline” (P12, female, 45).

When one’s values are called into question, it can be difficult to maintain self-control. Participant 9 explained how after she moved from India to Canada, her value system fell temporarily into disarray, resulting in what she perceived to be uncontrolled or unacceptably risky behaviour:
So, but my husband he tried to expose me to different elements of this society, this culture, so he would take me to a bar and he would say “This is what it is like and if you want to have a drink you can have a drink, right, so at least try it.” So then I would try it. I didn’t like it. And I would come home and tell my friends and they’d say, “Oh, there is nothing wrong in it, go right ahead and do it.” But then again I would think on it and say, “You know what, no, no, that’s not good for me. I wasn’t raised this way. My values come and it also has these health effects, so I should not go this path.” So, you know, they would sort of think like the same thing of smoking or wearing different kinds of clothes at that moment. So it took a while for me to say, “Okay. You know what, no; I should not do this, because it’s not right.” (P9, female, 42)

Thus, the subjective question of what is “right” or “good” will change across situations and over time. In addition, one’s moral or ethical bases for self-control involve not an absolute standard of justice, but what one can rationalize into one’s narrative of values and beliefs.

And what you do and don’t do depends on a number of factors that have made you the way you are and what you determine you can and can’t live without, like if you can go to bed at night and sleep. You know, what can I do and be comfortable with, even if it’s not right? (P13, male, 41)

Being a “good person” can involve self-control across a number of distinct roles.

Well, I’ve been doing a lot of soul searching, so I’m trying to be a really good person and that covers all those areas like wife, mom, friend, neighbour, citizen, right? Yes, so I’m trying to be really good in all, so I’m going to say there’s lots of self-control in all of them. (P11, female, 46)

Being a good person can also depend on religious exemplars and guidelines. “I have a religious base that I can go to and say, ‘how does this model out?’ You know, ‘should I be doing this, is this the way you want to end your life, acting like this?’” (P17, male, 55).

Attributions to moral, ethical, or values-based reasons for self-control are an important part of creating and implementing goals. However, not every choice is an ethical dilemma; sometimes reasons for self-control are based on logic rather than values. Participant 13 discussed his rational reasons for using self-control at work:

Well one’s so I don’t lose my job until I get into what I really want to do, which is get my photography business going full time. Yes, job loss, most days I do enjoy the job, you know I get paid good for sitting there telling people where to go, basically. But yes, so the main thing with that is job loss and possible fine from CRTC I guess. (P13, male, 41)
Thus, self-control can stem from a utilitarian perspective, where considering the ends or outcomes of one’s actions, and not the ethical or moral context, drives goal-directed behaviour.

Participant 14 explained how using self-control to negotiate the best deal possible for his union meant relying solely on logic and facts because he knew that the company would be watching him for evidence of “weakness” (i.e., emotionality or irrationality):

And they’re going to write down everything you do. So if you go back with a cool head and look at the facts, take the facts out of it, respond to the facts. Any alleged statements, any condescending comments, anything that isn’t really a fact, just let it wash over you. (P14, male, 42)

There is some overlap between attributions to values and attributions to logic. That is, attributing one’s self-control to reason or logic can be the same as attributing one’s self-control to values and morals, if one believes those values and morals are also logical. Similarly, rational bases for self-control can reflect a higher-level values-based goal; that is, being the kind of person who bases their decisions on reason and logic can be an ethical or moral goal in itself.

Participant 11 talked about how her careful planning of finances was a means to getting out of poverty, and how she has taught these reasoning skills to her daughter:

Because I look at my daughter and she does the same thing, like she gives herself an allowance every week of, you know, fun money, but now she’s like, “hmm, you know, my car’s getting old, it’s giving me grief, maybe I want another one. So I’m going to reduce my allowance and put the difference in her new car fund.” (P11, female, 46)

Defining goals using reason and logic can also be used to moderate ethical reasons for self-control. Participant 7 talked about how her ethical reasons for vegetarianism in Canada were modified by considerations of the cost and sustainability of kangaroo meat in Australia:

So in that way something like kangaroo, I eat kangaroo meat because it is the green meat and again it’s really cheap. It’s cheaper than tofu and it’s nice. Like you can get steaks, you can get kabobs, you can get sausages, like we would eat kangaroo sausages. Kangaroo is the only meat that both myself and [my boyfriend] liked, so that would make meals so easy, and I did not feel bad about because they’re all culled, they’re not farm raised. (P7, female, 25)

**Implementing goals.** Whether goals are set for ethical or rational reasons, goal formation is not a sufficient cause of successful self-control. If goals are the strategy in a lifelong war for
self-control, then structures and plans that replenish or retain self-control strength are the tactics that win individual self-control battles. For example, Participant 11 talked about how her motivation for self-control came from the goal of avoiding the poverty of her childhood. To achieve this long-term goal, she created smaller plans and sub-goals, implementing self-control on a daily basis:

I think that just came, again, from my past, growing up poor and I kept going, “I don’t want that repeated.” So I was determined and I’m always a very determined person, I can set a goal and achieve it because my goals are always realistic. So I just motivated myself and I said, “Do you know what? I want out of this area.” And then when I got, like, a real apartment, then it’s like, “Okay, I need an education or I’ll never be able to afford to keep my child.” So I put myself through school, then got a good job, got a better job, you know, that kind of thing. And I’ve learned how to handle money because I would, you know, go to one day seminars on, you know, investing and, you know, right now I’m researching that tax free savings account that everyone’s talking about. (P11, female, 46)

Similarly, Participant 6 talked about how structures that help automatize self-control allow her to maintain goal-directed behaviour:

They could be simple structures, so making sure again I have all of the foods that I need that are going to be low carb stocked up in my fridge and ready to go so that I am not ready to grab for something if I am starving that has high carb content, things like that. So little structures like that in my life. Let me think of another one, not having too much cash in my pocket because I know that I will just burn through it. That sort of thing. So to me self-control and self-discipline requires some sort of structure, plan. (P6, female, 36)

Tactics to implement goal-directed behaviour are not always particularly helpful in the long-term. For some participants, focusing all one’s energies on a single goal is helpful in achieving that goal, but maladaptive to self-control in other life domains.

I have to work in extremes in order to exercise really good self control and I suppose stopping myself or making myself do things, it’s like I have to really, kind of, focus all my energy. So when I was quitting smoking it wasn’t just, “oh, yes, and I’m quitting smoking,” like, it kind of took over my life for a couple of weeks and I did everything I could to help myself deal with it. The same with school I guess, if I have to, you know, get something done, whatever, then I just have to put all of myself into it and that’s, kind of, the only way that I can really deal with extreme. (P16, female, 25)
Devolving self-control responsibility to another person, essentially creating a form of external regulation, is another tactic for successful self-control. Participant 13 talked about how he manages his impulsive spending by giving his money to his wife and letting her dole it out:

If I’m smart I take money and I give it to [my wife]. And if I’m left with money in my pocket and it’s not like—and I’m walking through a store and something really shiny sparkles, I’m like “That would be cool, I’ve got to get that.” So yes, I’m not too good with money yet. So whenever possible I give it to the wife and say, “You pay the bills and let me know if I have an allowance.” (P13, male, 41)

Participants discussed how making self-control either more external or more automatic can be a successful strategy for maintaining goal-directed behaviour. Participant 14 described his template for behaviour while bargaining for a collective agreement:

And you’ve got to make your points and lay it out in front of you and stick to the points. Don’t talk about gossip, don’t talk about hearsay; don’t talk about anything that isn’t pressing. You stick to your agenda, stick to the points that are being dealt with and try to just guide it along that way. (P14, male, 42)

Thus, many participants believed, in accordance with research evidence (e.g., Webb & Sheeran, 2003), that once behaviour follows a heuristic, self-control is much less depleting.

**Agency and autonomy.** High self-control occurs when people are able to set goals and devise ways of implementing those goals. However, the motivational context of those goals also influences self-control striving. In order to use internal self-control strength, one must be willing to take responsibility for one’s actions and find a way to intrinsically motivate goal-directed behaviour. Participant 3 discussed how he has trouble finding internal motivation to control his diet:

But both the wife and the daughter are after me in terms of my eating. So that I suppose they are in some way trying to help me with my self-control, you know, so... And ultimately, like my wife says, you know, it’s up to you. You know, you want to do it, you want to kill yourself, go ahead. So I don’t know. I know she cares and so does the daughter, but... (P3, male, 60)

Even when one’s friends and family support self-control striving, changing behaviour and maintaining that change requires agentic and autonomous choice. Participant 15 discussed how after the death of his fiancé, he relied on self-medication and prescribed medications to help him
sleep. Once he realized that this wasn’t a viable long-term strategy, he quit his prescribed medication and drinking:

   All under the authority of my psychiatrist and under the authority of my friends as well too. I mean all my friends were seeing the changes that were developing, and my psychologist as well too. So I had quite a few people to talk to, but in the end no one else is going save you but yourself, and that’s kind of how I feel now. So if you’re not willing to take control of yourself, then probably later down the road you’ll still continue to have the same kind of issue with problems and not being able to deal. (P15, male, 31)

When self-control is autonomously motivated, subsequent self-control is easier. Participant 4 explained how “doing” (i.e., creating her own exercise regimen) was much more inherently satisfying than “following” (i.e., complying with the requirements of the “Body for Life” exercise program). Less autonomously motivated exercise was less enjoyable, and was ultimately harder to maintain as a habit:

   “Doing” was I was in control; “following” was they were in control. “If you don’t do this you are not going to achieve this,” but the way that I was doing it, it was more like, I am just going to do what I am going to do and that’s the way it is. If I want to push myself hard I am going to do it, I am not just going to follow and do fifteen push-ups, you know what I mean? (P4, female, 37)

Participant 8 discussed how the ability to make autonomous decisions during her separation and divorce increased her overall sense of agency, self-control, and wellbeing:

   And I guess maybe part of it too was that for once I was in complete control. You know, we had been together for so long, you know, we had always bought houses together, you know, we always had—and this was probably a good thing for me because I was able to show, you know what, you don’t need anybody, right? And I’m not saying that my parents always said that growing up, but you see it, right? You have a mom and a dad and they support each other, right, they run a household together. I always just assumed okay, you get married, you have a house, and…that’s it, right. I know family structures are different these days, but my family is very, I would say traditional in that way, like all my aunts and uncles are married, so it’s what I’ve learned. You just grow up and you think okay, well, I could never own a house by myself, right, but I did. I sold that house, I bought another one, I’m in full control of what happens there, and it’s good. It’s a great reinforcement that I did things well, right? (P8, female, 29)
Logical and moral reasons for goals, plans for goal implementation, and perceived agency and autonomy in choices all make self-control easier. Next, I explore attributions for low self-control and self-control failure.

‘This is Why I Fail’: Attributions for Low Self-Control

In addition to reasons for self-control success, participants discussed reasons for self-control failure. I identified five themes related to attributions for self-control failure: childhood experiences, lack of resources, loss of agency, disregarding goals, depleting moods.

Childhood experiences: A (shaky) foundation for self-control. As described above, some participants reported that childhood rules instilled by parents led to a sturdy self-control framework. For other participants, a lifetime of self-control striving has taken place to remedy the deliberate or unintentional lapses in parental self-control and judgement. Participant 6 explained that she struggles with overeating, in part because, “I like to see things finished. I don’t know if it was growing up, there was always something on your plate. You’ve got to finish that first before you get your treat. It was something like that where I don’t like always seeing something...” Participant 11 described how childhood deprivation shaped her perceptions of adult self-control, leading to a feeling of entitlement or deservingness:

Other times I feel I’m trying to make up for my crappy childhood, because I grew up dirt poor and I always said, you know, “When I am older I am going to, you know, always have Pepsi in the house,” because we never had pop and I loved Pepsi. And it’s like, “And I’m never living in a freezing cold house,” well, now I have lots of heat, you know, that kind of stuff. So, I kind of try and make up for it. (P11, female, 46)

Among the most vivid and permanent childhood experiences on self-control is childhood abuse. According to Participant 10, dealing with abuse at a young age can shapes how one perceives the world; all future self-control striving then occurs in relation to the earlier abuse. For Participant 10, self-control was something she had to learn “to survive,” such that she now struggles to balance “being good” with giving up control in a healthy way.

And there are some times when I just feel like, “What the hell?” [laughs] Because I reach a point of, “Oh, I’m so tired of being good, I’m so tired of being good, when can I stop being good for five minutes?” And now that I’ve said that, boy, that sure sounds like something from my childhood, because that’s how I, you know, I was—I had to be vigilant and good and just always attentive to
everything around me. So, yes, there was never any, “Oh, I can just relax.” (P10, female, 58)

Similarly, for Participant 13, understanding loss of self-control involves a context of childhood abuse:

Well one, if I’m feeling—I think a lot of it comes from my sexual abuse. If I feel threatened, cornered or that someone’s trying to take advantage of me or my family, I say “I ain’t even going to talk, I’m just going to knock you out.” Like I mean, I’ve done a lot of thinking about this over the years and it’s kind of like, “Okay I’m not a little boy that you can take advantage of any more, I’m a 250 pound male and I’m going to knock you out” and it just goes to that. (P13, male, 41)

Childhood experiences can both shape and warp adult efforts at self-control, at setting goals and controlling behaviour. However, other internal attributions for self-control failure stem from shorter-term internal states.

**Disregarding goals.** Loss of control can be a voluntary or involuntary process. That is, people can be forced to give up agency and autonomy in their decisions by the exigencies of the situation, can slip into self-control unexpectedly after planning otherwise, or can decide to give up control as a planned indulgence or to continue a binge, having fallen off the wagon. Participant 2 discussed how a planned indulgence can spiral into a much larger loss of control:

I think sometimes that you feel that you’re going to stop and then you don’t. Like, you say to yourself at the beginning, okay, whatever it might be, I’m not going to have that—I’m going to have one piece of chocolate and all of a sudden you’re like, oh, my God, I’ve had eight. Like, how did that happen? Yeah. So I think you tell yourself, but then you just kind of, oh, well, like, and you don’t follow through with what you know you should be doing. (P2, female, 47)

Disregarding goals can also occur when one focuses on short-term gratification over long-term risks. Participant 3 explained how for him, self-control is something that happens tomorrow. His self-control goals are in place, but he is not moving towards achieving them:

And then this afternoon, well, I passed the store and, mm, yeah. [laughing] And I guess in my mind there’s one thing that I’m thinking is that, ah, one more cigar won’t hurt or, you know, just having a little bit of cake or something like that after supper, that won’t hurt. I’ll do it tomorrow. You know, like, I’ll stop tomorrow. So the biggest thing is I know what I should be doing, but I’m not doing it. (P3, male, 60)
Similarly, Participant 6 discussed how giving herself permission to disregard goals results in loss of self-control, “Yeah a kind of fleeting thought and then “oh well, I am here now doing that. What damage can it do?” I give myself excuses in that moment” (P6, female, 36). Furthermore, loss of self-control can be a way of dealing with overwhelming demands.

You know you’re out of line, you know you’re overreacting, you know you shouldn’t be saying or doing the things you’re doing, big or small, and then you think later on “Well I can fix this later on so I’ll just keep going and vent this and then I can fix that up later on.” (P14, male, 42)

Attributing loss of self-control to failure to monitor or enforce goals tended to occur in a relatively short-term timeframe. In contrast, attributions of self-control failure to loss of agency occurred in both short- and longer-term contexts.

**Loss of agency.** Loss of agency through an inability to make autonomous decisions can be a depleting experience. Many participants described times in their life where they felt a loss of agency and concomitant loss of self-control.

So I’ve always been a planner and I married the guy, actually, that I dated for 10 years and he had an affair. So actually, our divorce was just finalized last week, but I’ve never felt so out-of-control before in my entire life, because there were so many things that I didn’t know what were going to happen, you know, what was going to happen to the house, like was I going to be okay to make it on my own, right? And it was that not being able to have those options in my control that I hated. (P8, female, 29)

When I have this—in this relationship with this person, unfortunately he is manic depressive, will not take medication, will not accept medication and he can be very difficult to deal with, there are a lot of rollercoaster emotions on his behalf, like when he walks through my door, I don’t ever know what’s coming at me. And I know recently we had a conversation that I completely lost my self-control. He is also a compulsive hoarder. And he lives right next door, so it complicates things because he then, when he has no room, he uses my apartment as a storage unit. (P10, female, 58)

Not knowing how to deal with a situation, or having one’s choices constrained by another person or by external pressures can create a perceived loss of agency that is felt as a loss of self-control. For example, Participant 15 talked about how after the death of his fiancé, “But a time when I didn’t have self control was during the accident. Basically I didn’t know what to do and life was basically flipping itself over. And that was the biggest one” (P15, male, 31).
Furthermore, loss of agency and loss of self-control can occur in a positive feedback loop, such that loss of self-control leads to escalating loss of agency, and vice versa. Participant 2 explained how after a couple drinks, she loses the ability or even desire to further control her drinking:

Oh, probably when it comes to drinking wine. [laughing] When I say to myself, okay, you know what, I should have, like, two glasses and before I know it I’ve had, like, four or five. And once I get past that point, I don’t really think about it until the next day and I think, oh, why didn’t I stop? I should have stopped after two because then I would feel good the next day. (P2, female, 47)

For many participants, once self-control has slipped a little bit, giving into temptation becomes the automatic response, with a concurrent sense of loss of personal choice or agency in that moment. Participant 6 discussed how night time snacking could turn into binging,

“Oh there is still more, I am going to have more.” So I have a hard time with that or if I start eating something that is like ice cream or something that I know I shouldn’t have and it is late at night and especially if I am tired and I have had some kind of a carb first thing in the morning, I find. (P6, female, 36)

Reducing one’s personal responsibility or agency over a self-control situation can also happen over a period of years. Participant 7 described how she stopped being a vegetarian through a gradual process of giving up autonomous control to the influences of others:

It was fairly—it sort of like just happened gradually over the span of a couple of years. Plus I had a boyfriend who was an omnivore and I guess, yeah, like the other people definitely influenced me. Like I feel like I’m very malleable, like who I’m exposed to influences what decisions I make, which I think is general of most people, right? (P7, female, 25)

**Depleting moods.** Participants attributed loss of self-control to diverse moods, ranging from negative feelings and job stress to positive feelings and relaxation. Of interest, most participants attributed their loss of self-control to the mood state itself, rather than to efforts to engage in mood repair.

For Participant 2, sad moods led to overeating whereas happy or celebratory moods led to overindulgence in drinking.

You know, when you kind of, like, are sad or whatever and you can like, oh, okay, eat that thing of ice cream or whatever and not really even paying attention
to what you’re doing… Well, for me I think with the drinking, it would be more of the good mood (P2, female, 47).

In contrast, Participant 6 attributed loss of self-control to a state of relaxation, “I think that when I am relaxed I lose self-control more, a little. That is where I am more vulnerable” (P6, female, 36).

Rather than discussing depleting mood repair efforts leading to a state of depleted self-control, participants saw moods as proximal causes of self-control failure. However, what participants defined as “mood” varied from person to person. Participant 14 explained, “Well a lot of times it depends on not just your emotions but how you physically feel as well. If you’re tired, if you’re stressed, if you’ve got something else weighing on you, if there’s something else on your mind” (P14, male, 42). Thus, perceptions of stress or tension were sometimes discussed as a feeling of depletion, rather than a purely emotional state.

**Lack of resources.** A minority of participants attributed self-control failure to a loss of resources. Of importance, I did not discuss the limited resource theory of self-control with participants until the debriefing portion of the interview, and did not use interview probes related to resource depletion. Of their own initiative, less than half of participants discussed a limited reservoir of self-control resources, such that if external or internal demands are too great, self-control is lost. Participant 14 explained that self-control failures tend to happen:

I think when you have young children and you’ve got a lot going on. Like my girls, I’ve got one in London, at Western University, she’s 18, and the other one is 16. But they were younger and they were four and five years old, they want this, they want that, and you’re trying to talk to somebody on the phone, you’ve got the water boiling for the macaroni, you’re still putting your lunch bag away and the dog needs to go out and they’re pulling at you, they want this, they want that. There’s a phone call so you’ve got to get your Internet straightened out and then you’ve got to wait and talk to somebody at Bell, just for an example. And they’re pulling at you and pulling at you, that’s when you’re like, “Will you guys get out of here” and you overreact because you’ve lost self-control, you’ve got too many mitigating factors and external forces are just pulling you in different directions. (P14, male, 42)

Participant 16 was very specific about self-control being a limited reservoir, “So it’s like I have a little reservoir of self control and I just can’t handle too—which goes hand in hand with what I said about having to put all my energy towards something” (P16, female, 25). Participant 10
reported that chronic pain and insomnia depleted a limited self-control reservoir, making subsequent control of her emotions and behaviour impossible:

> You know, I can have good intentions and then when the moment comes I’m just not up to the challenge of... And I think yesterday is a perfect example of that, only because I was functioning on two hours sleep in a 24-hour period. I just had no ability to focus or have self-control. This morning I got up, everything was okay. (P10, female, 58)

Similarly, Participant 6 explained how lack of sleep reduces her ability to control her intake of sweets, “Yes, if I haven’t had enough sleep the night before I have very little self-control the next day with food. I crave more sugar, guaranteed. I will wake up and say ‘oh, I am going to crave sugar today’” (P6, female, 36). However, for most participants, loss of self-control is not attributed to a lack of resources per se, but rather to a lack of planning (i.e., disregarding goals) or ability to implement (i.e., loss of agency or depleting moods).

Many internal attributions for self-control success and self-control failure are opposite poles of the same concept. Just as learning and experience gained through a lifetime of practice contributes to successful self-control, people can also attribute their self-control failures to early experiences ranging from parental rules (or lack thereof) to trauma and abuse. Just as setting and implementing goals aids self-control, so discarding and disregarding goals can lead to self-control failure. Just as perceptions of agency and autonomy can make self-control easier, so forced risk and forced choice can make self-control more difficult. However, although attributions to self-control failure comprised discussions of depleting moods and depleted resources, there was no matching pattern of attributions for self-control success. Of interest, attributions of self-control failure to limited resources were less common than attributions to other reasons.

**Discussion**

Participants attributed their self-control to learning and experience. In particular, participants discussed how self-control is developed as one internalizes childhood rules and regulations, eventually gaining the ability to set one’s own goals and monitor one’s own behaviour. Perceptions of risk change with age. Increased exposure to risk is part of the developmental process of becoming an adult. Considerations of “now or never” opportunities can make risky behaviour seem more justifiable (Ravert, 2009). For example, the unique
opportunities for undergraduates to experiment with drugs and alcohol, maintain a lively social life, and sleep at unexpected hours means that many students view these activities as justifiable risks (Ravert, 2009). However, what one considers acceptable risky behaviour as a young adult (e.g., drinking, sexual behaviour) may be severely curtailed in middle age.

In addition to learning and experience, participants attributed successful self-control to setting and implementing goals. Participants reported that when self-control temptations are viewed in isolation, self-control tend to be more challenging than when such temptations are viewed in the context of one’s goals. Myrseth and Fishbach (2009) found that before self-control resources can be employed, people must identify a conflict between a temptation and their long-term goals. Considering the tempting behaviour as a unique opportunity makes indulgence more likely than when the tempting behaviour is considered as part of a larger pattern of uncontrolled behaviour (e.g., smoking one cigarette because it’s a holiday vs. smoking one cigarette as part of a lifelong smoking habit).

Participants explained that their goals and motivations for self-control came from both personal values (e.g., a vegetarian diet due to a belief in animal rights) and rational reasons (e.g., a vegetarian diet for reasons of environmental sustainability). There is no clear demarcation between ethical and logical reasons for self-control. Rather, participants talked about how larger goals for the self (e.g., being a good person, being healthy) can translate into smaller, outcome-specific goals (e.g., avoiding conflict, exercising regularly).

Furthermore, participants discussed how successful self-control depends not just on setting goals, but also on being able to implement goal-directed behaviour. Many participants talked about their self-imposed structures and plans that help them maintain self-control. These structures and plans are particularly interesting, as they help account for shorter-term temptations to self-control in order to implement longer-term plans and goals. For example, bringing a snack to work removes the temptation of the vending machine and contributes to the long-term goal of weight loss and health. Giving up one’s spending money to one’s spouse removes the temptation of impulsive spending and contributes to the long-term goal of financial stability. Thus, it appears that finding tactics to make self-control more automatic increases the chance of self-control success.
Participants’ perceived ability to manage self-control across several life domains was diverse. Whereas some participants reported that their lives were highly controlled across multiple roles and domains of self-control, other participants reported that they took an all or nothing approach to self-control. Rather than finding a way to integrate goals across multiple life domains, some participants reported that self-control striving in one area meant less ability and motivation to exert self-control in other areas.

Most participants attributed their successful self-control to internal motivation and autonomous choice. For many participants, responsibility for self-control ultimately rests at the level of the individual. However, accepting this responsibility can be replenishing; the ability to make agentic and autonomous choices can motivate future self-control striving.

In contrast, participants attributed low self-control to loss of agency. Specifically, participants reported that loss of agency and a resulting loss of self-control may occur through feeling compelled to behave in a certain way to please others, or by giving up cognitive control in order to binge on food or alcohol. When perceived agency over self-control choices is reduced, self-control failure is more likely. Participants report that this reduction in perceived ability to monitor goals and guidelines and exert self-control can stem both from emotional states that relatively automatically trigger self-control lapses and from conscious choices to give up self-control and indulge. Only a minority of participants attributed self-control loss to depletion of self-control resources. Thus, it appears that people may attribute self-control failures to changes in mood and motivation rather than a lack of self-control strength.

Of course, people do not always blame themselves for their self-control failures and do not always take credit for successful self-control. In the next chapter, I discuss external attributions for self-control success and self-control failure.
Chapter XI: What Are External Attributions for Self-Control and Self-Control Failure?

Influences on self-control external to the individual were a primary theme in the data. Under this heading, I identified three sub-themes: the environment or situation, external regulation, and external depletion. Relationships between people are considered separately from external influences; these involve both internal and external influences on self-control, and are discussed in the next chapter.

Environment or Situation

In large part, successful self-control involves negotiating the environment or situation. Participants reported that tempting environments, such as birthday parties, nights out with friends, and fully stocked cupboards, make self-control more difficult. Impulses to indulge are often very situation specific.

For me it’s—like, it’s food or sweets and wine kind of thing. I mean, it’s funny because I can have wine in the house and not touch it at all all week, but then on Friday night and on the weekend... So I guess I think to myself, well, why is it on the weekend that, like, I want to drink so much and not drink so much through the week? (P2, female, 47)

Some participants expressed how challenging it is to maintain self-control in certain environments. In particular, participants described how when a situation itself triggers habitual behaviours, consciously overriding these habits can be very difficult. Participant 3 explains how different environments trigger different kinds of loss of self-control:

So that it’s environment. It’s environment in terms of smoking in the car, having that first coffee and the cigar in the morning. And then it’s also environment, I guess, in terms of after supper. Nothing to do with my hands, except for make the sandwich and mmm-mm-mm. [makes om nom nom noises] (P3, male, 60)

Of interest, these lapses in self-control do not appear to stem from lack of self-control resources, per se, but rather from a situation-specific lack of motivation to expend self-control energy. That is, environments that facilitate turning off active monitoring and management of self-control tend to result in self-control failure.

Yeah, I think watching TV is a bad thing for me because I think I just... Then you eat and eat and just don’t realize because you are just focused on watching TV so I am not thinking about what am I doing?” (P6, female, 36)
My parents had a store when I was growing up as well, a variety store and an Italian deli. I ate so much cheese and lunch meat because I used to work there when I was young too, twelve, thirteen years old and they would leave me in there. There was nothing for me. I remember sitting in the chair and to the right of me there was this glass counter, like an old ‘70s counter and it was just open and all that was in it was all convection candy, one penny candies and all that. Above my head was this ‘70s chocolate bar rack with all of the chocolate bars and the TV would be right there. I remember, there would be no customers and I would be just like, whatever one I grab and there would be nothing to eat five or six chocolate bars a day and swing that door open. I gained so much weight back then. That is when I was going to high school. So it was really difficult for me. (P4, female, 37)

In contrast, some situations support self-control efforts. In an environment with fewer temptations or cues that trigger habitual loss of self-control, self-control becomes easier. For Participant 16, it was easier to quit smoking after she moved to a city with fewer smokers: “I’d wanted to quit for a while anyway because of more, kind of, internal goals, and then being at Guelph it actually became a lot easier because there are no smokers and there’s no one, you know, passing” (P16, female, 25). Similarly, something as simple as removing distractions can make self-control easier:

I try and put myself in an environment that’s conducive of that. I’m not really good at studying in my room, which is why I thought well, after this, then I’ll just get a coffee and sit in like the Bullring [a campus coffee house]. (P7, female, 25)

Thus, successful self-control appears to involve negotiating the demands and temptations of the environment while maintaining behaviour congruent with one’s goals.

When I first started the Atkins I was very strict about pretty much eating the same thing everyday. The same thing for breakfast, the same thing for lunch, and packing it ahead of time. I had to do that structure in order to switch over. Now I am sort like “okay, I am out on the run, I am going to grab a little handful of almonds or I am going to grab some cheese,” or go through the drive through at McDonalds and ask them for a burger with no bun. They are always like, “what?” But that is just my way of coping. So I found ways of sort of if I didn’t bring something I found ways to manage out there in every day society where there are lots of carbs everywhere. (P6, female, 36)

For some participants, negotiating the environment is a dynamic process, without reference to a larger goal framework or past or future self-control efforts.
I don’t think there is a timeline for self-control. I think it’s a moment-to-moment thing. I mean we’re faced with stresses and tensors all throughout the day, from work to school to whatever. So I don’t think there’s a timeline, it’s just when things stressful come up, you learn how to basically deal with those, and you go on. (P15, male, 31)

However, for others, external influences on self-control are filtered through their own values and guidelines. Participant 9 explained that when she immigrated to Canada as a young woman, behaviour that seemed normal to Canadians would have been a loss of self-control for her:

When I first came to Canada, that was 20 years ago, as an immigrant, I come from India, and for me this was a definite culture shock, everything was so different. Everything was so open. So easily available. And I came here after my marriage, so obviously I didn’t have my parents to say “Don’t do this, don’t do that.” So I came out here with a set of values which were very, very traditional, conservative, whereas my husband who grew up here, his values are totally different. He was thinking the way people would think here, but I was thinking in my own ways. But when I would see people doing things around me I would say, “Wow, I wasn’t able to do all this, maybe I should try doing this.” Maybe I will see people going into a bar and I used to get amazed as to how they can go, because in my country, women are not supposed to drink, only bad girls do that. (P9, female, 42)

Thus, for some participants, the influence of culture and social norms on self-control may result in a form of external regulation.

Social Norms and External Regulation

For most participants, self-control requires negotiating diverse situations and environments. The social context and associated rules of a given situation can make self-control decisions less autonomous. However, these externally controlled rules and regulations are not necessarily depleting, and can actually make self-control easier.

When I was in the army, you had to do it [have self control]. And I worked hard at it, so that it was—I suppose a lot of that self-control may have already been imposed by the rules and regulations—by the schedules that we had and everything else. I had to live within that framework. But then, I also tried to do better. (P3, male, 60)

Even when self-control is difficult, norms of corporate culture or legal obligations can make self-control management a little easier. Participant 13 works as a dispatcher for a busy cab company:

Sometimes I’m talking with 50 people at once that are all cutting each other off, jumping in. It’s not rocket science, if they fail to bring a pen and paper and write
down what they’re told, so you’re got to dig and look for it and tell them again. They don’t want to think for themselves. They ask you stupid questions. So you really want to yell and scream and swear and threaten to kill them, but you’re on a public radio broadcast where all the other customers can hear it. And so can the CRTC and you could be fined and fired and whatever else. So I exercise a lot of self-control that way on a daily basis. (P13, male, 41)

When asked if using self-control to avoid confrontation at work was difficult, Participant 13 reported:

It’s like I’m almost natural. Like there’s very few things now that I really, really have to almost grab myself and say, “stop.” Like work’s a daily thing, and I know you’ve got to behave or you’re going to get fired. So it’s not that hard. (P13, male, 41)

Similarly, Participant 14 reported that working in a stressful situation as a union negotiator became easier once he understood the social norms of the situation:

Once I learned that, if you can form your words better, you’re going to get a lot more respect from the company. So if you go in there and you’re just using vulgarities and you’re hot headed and you’re trying to intimidate them with anything, well you’re not going to. They’re the company, they’re not going anywhere; you’re going to be going somewhere. So you have to be able to come back in and earn their respect; and I think I did. It took a little while, but after a while it was so much easier to get things negotiated with the company, whether it was discipline, whether it was a contract, whether it was policy, it was so much easier to get something negotiated because they know that I’m not going to overreact to it, I know that they are going to kind of elevate it and expect me not... (P14, male, 42)

Many participants reported that it was easy to exert self-control to meet social norms and expectations that had been internalized since childhood and that they model for their own children. Participant 11 stated:

For myself I think it’s automatic. Yes, and I think it’s because I’m older so I’ve had years of all of those, you know, like, the self control as a parent, I’m trying to set an example for my children. You know, I use self-control at work for obvious reasons, you know, I don’t want to be late and I don’t want to be rude because my job’s on the line. You know, I follow the laws as far as driving goes and not shoplifting and not murdering my neighbour and stuff, right? So it’s all constant and it’s all been drilled into me whether it’s, you know, biblical or whether it’s a law or whether it’s, you know, my mother’s voice in my head, but it’s all there. (P11, female, 46)
However, for some participants, when control over behaviour is not autonomous, it doesn’t necessarily count as self-control.

Right, like your dad says, “go mow the lawn,” so you go and do it. I suppose I mean there must be some self-control even then, it’s like, because, “no dad, I am not doing it.” I don’t know. You could probably get away with a lot more when you were younger purely because you would—I don’t know—you didn’t... Even if you were like really young and you didn’t even know any better. I mean I suppose that would be the only time that you could say that you probably had less self-control. Yeah, it is not so much the decisions, it’s the fact that you don’t know what a decision is and you just do something. (P5, male, 34)

Participants described how childhood behaviour tends not to be autonomous, choices are typically not free, and less self-control is therefore required.

When I was growing up like self-control was a big—there was no such thing as, “self-control, I need to have this, I need to have it,” right? So if I would say to my parents, “I need to have it,” they would say, “no.” I would cry for an hour or so and then not have it, but there was no such thing as like, “we’ll think about it, was it good for me, bad for me, make my own decisions.” So I think self-control gives you the power of making the decision yourself rather than relying on somebody else to make that decision for you. Like if you want something, go ask parent. They say no, okay. You never got a chance in other words to say, “do I really need it?” (P9, female, 42)

Participant 9 reported that she felt that she began using self-control once she moved to Canada and no longer had her parents to make decisions for her.

Being on my own, really had to learn everything. Right from walking on the right side or the wrong side of the road, to get used to the accent. The same thing, they got used to my accent as well. I’ve learned so many different things and a new way of life altogether. (P9, female, 42)

The changing social landscape can create decisions and choices that weren’t possibilities in the past, requiring new kinds of self-control.

Sure, like going back many years ago you’d have to endure so long in the, you know, working world and now you can work part time. You were forced into certain things and now it’s there are more choices, there’s more variety. The information network, of course, you know things right away, where in those days you didn’t know sometimes for months. (P17, male, 55)
Participants described how social norms may partially determine the boundaries of self-control and act as a form of external regulation. Most social norms facilitate self-control, such that people tend to be motivated to behave in a socially normative manner. However, as people encounter changing social norms, changing their behaviour to align with those norms may be difficult, especially at first. Indeed, rather than seeing social norms as comforting guidelines, a minority of participants reported that external regulation and lack of truly autonomous choice led to a sense of false self-control. As Participant 1 stated,

The rules that society has made, that you have the boundaries that you can’t pass. Those things govern your life more than, you know, self-control. What is self-control? Is, like, the opposite of self-control no control? Is that something we should be shooting for? You know, because there’s way too much control. The government controls your education, forms you into a certain path. And advertisement also points you in the way you ought to go… (P1, male, 58)

**Consumerism and external depletion.** Although participants reported that many social norms lead to external regulation and facilitate controlled behaviour, norms surrounding consumerism and personal identity can deplete self-control. In particular, some participants discussed how advertising and consumer culture can deplete self-control:

You know, every TV ad—”buy now, go here now.” And the people, let’s say, from under 30, well, that’s the target of the audience, is thinking they’ve got to do it now. And ads, even in radio and TV become—get off the subject of what you’re even talking about—a car or a house—and they start talking about the now, the visual, the colour, the music, rather than the product or the reason. We’re losing focus, I think. (P17, male, 55)

Not taking part in consumer culture can make it easier to exert self-control, and such avoidance can even be a defining form of self-control. That is, self-control can be defined in terms of one’s relation to consumerism, and to what extent one is able to avoid falling prey to buying new things just because everyone else has them.

I’ve been thinking I have an old car and I want to buy a new car eventually, but then I say okay, now, this thing has more priority over my car. Maybe, you know, something has to be done in the house, maybe a new computer, because the family computer is dying, or something has to be bought for my child. So at least my car is taking me from A to B no matter if it is 12 years old. I see people sitting in new cars. My car sometimes gives me trouble, but I just say okay, let it get fixed. So for me, that is my self-control. Yeah, or, you know, not buying a fashion
Thus, motivation to comply with social norms may moderate the ways in which such norms influence self-control.

**Discussion**

Whereas successful self-control involves negotiating environmental temptations, participants attributed loss of self-control to specific environments and environmental triggers. Participants reported that certain environments were associated with habitual loss of self-control. Celebratory environments, such as weekend evenings out with friends or holidays celebrated with family, appear to reduce motivation to use self-control, possibly because loss of self-control in relatively habitual in these instances. Similarly, relaxing and watching television after dinner may be a time when many people do not have structures and plans in place for dealing with self-control demands. Participants also discussed environments that are supportive to self-control; such environments were typically described in opposition to the distractions and triggers provided by depleting environments. Thus, participants experienced self-control differently in different environments. In some situations, self-control is relatively effortful (e.g., a lavish buffet) or motivation to use self-control can disappear entirely (e.g., a lavish buffet during the holiday season). Other situations support and maintain self-control strivings (e.g., packing a lunch and avoiding the buffet).

Of importance, participants talked about how social norms function as a form of external regulation. In situations where certain kinds of behaviour are expected, those types of behaviours are facilitated. Although it can be difficult to avoid drinking too much when out late at the bar with friends, refraining from alcohol during an early morning meeting at work is typically much easier. Similarly, aligning one’s behaviour with the expectations of one’s employer and work culture means that one has to make fewer decisions about what kinds of behaviour are acceptable in that environment, thereby facilitating self-control.

Although participants described social norms as acting as a form of external regulation, this doesn’t necessarily mean that situations with associated social norms are less depleting. The self-presentation and impression management involved in following social norms can be a depleting experience (DeBono, Shmueli, and Muraven, 2011; Vohs, Baumeister, & Ciarocco,
However, when self-presentation strategies follow habitual or normative patterns, less self-control is required (Vohs et al., 2005), likely because less executive control is required.

Social norms also influenced where participants defined the boundaries of self-control. For one participant, the process of switching cultures (and therefore social norms) highlighted the ways in which social norms and cultural expectations act as heuristic cues to self-control. As she moved from one country to another, the demands on her self-control shifted, requiring her to monitor behaviour that used to occur automatically in her birth country.

Although external regulation from social norms can make self-control easier, some participants questioned whether non-autonomous behaviour should really be defined as self-control. This question of autonomy as a pre-requisite to self-control was not an issue for all participants. However, there was a general consensus that in childhood, one’s behaviour is controlled much more by external contingencies than it is as an adult. Indeed, the social norms relating to the borders of necessary self-control change with age. In addition, as society changes over time, the behaviours people learned to control in childhood may be irrelevant to the modern world. For example, social norms related to using a party line (shared telephone service) are an arcane process to most people living today, and the protocol of text messaging may be similarly confusing to future generations. Many participants noted that the number of decisions and choices available for control are growing rapidly in the technological era. Indeed, many participants noted that social norms related to consumerism provoke self-control failure.

Several participants discussed how advertising is a form of external depletion, there only to tempt us into indulgence. Of interest, participants who discussed consumerism and advertising as a form of external depletion reported that this was a form of self-control temptation to which they were not susceptible. Instead, they attributed others’ loss of self-control to an inability to control their desire for the latest and best material possessions.

In order to achieve their goals, people must be able to negotiate the changing requirements of the environment. Some environments are supportive, containing few distractions or temptations. Other environments are rife with triggers for self-control failure. However, societal rules, or the social norms of people’s external environments, can make self-control easier. When the guidelines are already in place, people do not have to expend any effort developing their own set of self-control rules.
However, in some situations self-control failure is the norm. Pressures from advertising and consumer culture, the pressure of “keeping up” with their peers, can lead people to abandon any self-control efforts (as evidenced during Boxing Week sales or other communal shopping events). Indeed the ways in which self-control operates in a social context are distinct from either internal or external attributions for self-control and self-control failure. In the next chapter, I discuss how relationships can transmit self-control between people, how social comparisons can be used as a strategy for self-control or a justification for self-control failure, and review the social outcomes of self-control.
Chapter XII: How Does Self-Control Operate in a Social Context?

The strength model of self-control takes a highly individual perspective of self-control and self-control failure. Self-control is viewed as coming from a single reservoir, and acts that deplete self-control in one life domain leave less self-control for other life domains (Baumeister et al., 1998). However, evidence from the qualitative interview data suggests that the self-control depletion and replenishment are not always individual events. That is, it appears that sometimes a self-control reservoir may be shared between people.

I identified a primary theme of Relationships and Social Contexts in the qualitative data, consisting of three subthemes: social transmission of self-control, social comparisons, and social outcomes. Specifically, self-control can be socially transmitted, resulting in depletion and replenishment across, and not just within, individuals. Furthermore, social comparisons appear to be an important part of self-control strategies, using upward and downward comparisons as a way of validating one’s own self-control strivings. Finally, self-control efforts have social outcomes, such that self-control and self-control failure can result in social acceptance and social exclusion. These social effects on self-control can be viewed as influencing motivation to expend self-control strength. However, the effects of relationships on self-control are not just motivational. Rather, participants reported that relationships can both directly deplete and replenish self-control strength.

Socially Transmitted Self-Control

Discussions of how self-control can be transmitted or transferred between people were remarkably consistent across participants, referring both to depleting and replenishing social interactions.

**Depleting social interactions.** Participants described two ways in which self-control depletion can stem from relationships. First, keeping up relationships with other people can be depleting. Second, peer pressure can change motivation to exert self-control.

**Relationship problems.** The closer the relationship, the greater the potential that relationship problems will deplete self-control. In particular, participants reported that marital discord was a depleting experience, leading to loss of self-control.

There was a lot of fighting with my ex-wives, two of them, like yelling and screaming. There’s no talk, throwing of things, like things that me in a healthy
mind knows unacceptable, it doesn’t tolerate. Like right now, if I see any guy abusing a woman, I pretty much attack them, you know, I don’t believe in that. Yet when I was really, really stressed out and depressed I would become something that I didn’t believe in, not to the point of physically abusing them, but verbal abuse, throwing things, is frightening enough for a woman to have to deal with. (P13, male, 41)

Several participants reported how the uncertainty and upheaval of a failing marriage can lead to feelings of low self-control within that relationship. Furthermore, relationship problems may deplete self-control in other life domains. Participant 4 explained that managing her self-control related to exercising became more difficult as she lost self-control related to a problematic relationship:

Yeah, because back then when I was going to the gym I actually started taking the trainer’s course and then I gave up on that. I only moved here because of my boyfriend back then. I gave up my life for that and maybe that was a big chunk of all of the big loss of [self]-control I guess you could say, but we are no longer together obviously, because I’m married. So that all crumbled apart as well, so I mean, I don’t know. (P4, female, 37)

Not only intimate relationships deplete self-control strength; any relationship that requires managing behaviour and emotions can be depleting.

Thus, the quality of one’s relationship with others is a factor influencing self-control depletion and replenishment. Difficult relationships can sap self-control strength; failing relationships can lead to a perceived loss of agency, which can be depleting. However, the content of one’s relationships with others can also influence self-control depletion and replenishment.

“Peer” pressure. Pressure from others to have high self-control in one life domain can lead to loss of self-control in other life domains. Participant 16 explained that as she attended graduate school, her relationship with her advisor was such that:

You know that you’re doing their bidding essentially. So I guess what I mean though is my—I guess time requirements and stuff are very difficult to deal with, where I might take two weeks to do something calmly and, kind of, live my life while I’m completing that task, I know that there’s an expectation that I have to do it faster. And so that, kind of, pressure often pushes me towards loss of self control in other areas. (P16, female, 25)
Moreover, specific people can act as triggers for low self-control. A process of peer pressure may also occur, whereby people actively try to persuade others to lose self-control strength, to share in a common indulgence.

I am not a big drinker but if I have friends over we’ll have a bottle of wine and I will be like “I shouldn’t have another one, I shouldn’t have another one” but once I get the first two I am just like, “okay, more, more, more, more.” (P6, female, 36)

Again, I think it’s the mood that I’m in or the people that I’m with. If I’m with one set of friends—like, let’s just take the wine, for example. There’s one of my girlfriends where she would probably only have one glass of wine, so I think, okay, I might have two. But then with some of my other party friends, [laughing] I’m like, oh, well, they’re doing it and I can do it too. And, like with the boyfriend, who’s twice the size of me, like, I’m just kind of keeping up with him. So I think for me it’s almost like a peer pressure kind of thing. Like, oh, well, this person’s being good, so I can do it. But then the ones that are, like, you know…. Or even saying to you, oh, well, you know, have that cake, have that chocolate or whatever. It is—it depends who I’m with. (P2, female, 47)

Thus, participants reported how pressure from family and friends to engage in a shared indulgence can result in loss of self-control. However, relationship pressure can also lead to loss of self-control when the controlled behaviour interferes with the relationship, prompting one partner to ask the other to reduce their self-control strivings. This may be for the best of intentions, such as attempts to reduce stress due to over-commitment to various activities. Participant 4 reported that her husband has asked her to reduce the number of activities requiring self-control in her life:

I mean I think my life—I went back to school again, I just finished school again. I have been so busy with other focuses that probably, since December, [my husband] is like, “enough school.” I have been in school since after I graduated college and I moved here. I’m always taking courses. I’m like an education addict and so I mean it is to the point where [my husband] said, “you’ve got to chill out. Enough.” So that is what I have been doing since December, but that I why I think I am talking to myself a little bit more because it’s like, “yep, what to do?” (P4, female, 37)

Similarly, Participant 7 reported that her efforts to maintain a vegan lifestyle were hampered by pressure from family and friends:

Pressure from other people that’s for sure. Definitely pressure like from [my boyfriend] and his parents too, like the whole, “it’s going to be so difficult to
prepare…” Like I like to please people, but—they were really good about it, but I could tell there was a bit of—I know I’m making things a bit harder, because a lot of people have no idea how to deal with that. It’s not like an allergy where you could die or celiac disease where people are really worried about it. (P7, female, 25)

Advice to reduce self-control strivings is not always appreciated by the receiver. Although peer pressure may create a socially acceptable way to lose self-control, such pressures often do not assist in dealing with larger problems and issues. Participant 8 reported that during her divorce:

I know at one point I was really frustrated with my mom because, well, they were concerned, right, so they were calling a lot and she would often say, “oh, I don’t know what I would do if this would happen to me. I think I would just fall down and die.” Like you get …like I heard that so often from people saying that, and I’m like true, but like what other choice do you have, like that is your choice, right? You can fall over and totally disassociate yourself from everything and everyone or you can get on, right? There is bigger and better things to do. (P8, female, 29)

It appears that social interactions and social pressures may deplete self-control and lead to self-control failure. This can occur through relationship discord or through engaging in shared loss of control with friends or family. Social interactions can deplete motivation to use self-control energy (e.g., believing that self-control striving is futile in problematic relationship). However, social interactions can also directly deplete self-control strength (e.g., managing thoughts and emotions in a problematic relationship).

**Replenishing social interactions.** Although relationships can deplete self-control strength, they can also be replenishing. Self-control can be transmitted between people through a process of social support as well as modelling and social learning. In addition, sometimes participants reported exerting self-control on behalf of other people, who could not themselves. Finally, concern about judgements from others supports self-control striving towards socially desirable outcomes.

**Social support.** Relationships with others can provide social support that replenishes or maintains self-control strength.
Sometimes it’s like I’m happy when I get together with, like, this one girlfriend who doesn’t drink at all. So if I go up to her place, it’s like, oh, good, I don’t have to worry about you know, getting carried away. (P2, female, 47)

In this way, social support for self-control can occur as a relatively passive process, such that being in the presence of particular people makes self-control easier. Similarly, simply being able to share a challenging experience with others can make self-control easier.

And sometimes it does take—that I guess is, kind of, losing control if I let it bother me after. I hang up the phone, I tell my co-worker what a, you know, what a moron I was talking to on the phone and bounce it off them…. (P12, female, 45)

Social support of self-control can also be more active, such that relationships take on aspects of external regulation, with one actor helping the other monitor and manage his or her own self-control.

In terms of the eating, actually my daughter is helping me with the self-control in terms of eating. She’s in grade 10 and she takes a food nutrition course. So I wasn’t—ah, maybe McDonald’s once every two weeks or Burger King or whatever, you know. Jeez, I haven’t been into a fast food restaurant since September now because [my daughter] says, “hey, it’s no good for you. It’s all—it’s full of fat and calories and everything else and....” So that she is helping me with some of the self-control there. (P3, male, 60)

Thus, relationships can provide informational as well as purely social support. By turning to colleagues, friends, and family, people can access the collective learning experiences of their acquaintances, augmenting their own self-control capabilities. “It is more like research, not necessarily on the internet or going to like a journal, it is even talking about things with friends and peers and getting information that way that helps to limit what I am doing” (P6, female, 36). Similarly, Participant 9 reported that she manages the stress of waiting for her laboratory job contract to be renewed on a yearly basis by turning to friends for advice, “I would talk to my friends who I can rely on and say, “What do you think? What should I do or should I just wait do you think? Would you think lesser of me if I do another kind of job?” (P9, female, 42).

Discussing problems with trusted others can make difficult decisions and situations easier. Participant 5 noted that during his divorce, being able to gain support from his parents assisted him with self-control, “I mean I talked it over with my parents and things like that. It is nice to take advice from someone who has been through that. So you can make decisions
yourself based on, not entirely their advice, but a little bit helps” (P5, male, 34). When a novel situation is encountered, turning to others for advice on self-control is a way of critically examining one’s own decisions and inclinations. However, simply sharing one’s problems with others can be replenishing.

So the night I kicked him out of the house, was probably the worse night I’ve ever had in my life. Like it was just—I don’t know, like you wake up and you can’t even believe that it’s happening, right? So I didn’t go to work that day and then the next day was the weekend so that was a Friday. And then I went back to work and I didn’t want to tell anybody at work, things seemed to spread like wildfire there, but I told a couple of people and instantly as soon as I had their support, it made me feel better. (P8, female, 29)

Relationships can also transfer self-control and replenish self-control strength between partners, complementing each other’s self-control capabilities.

If you find someone that, you know, my weaknesses are her strengths and vice versa, it’s like she’s taught me to calm down and I’ve taught her to stand up for herself, because she used to get walked on a lot. And it’s like she knows that no harm will come to her with me in her life, yet she’s also learning to stand up a little bit for herself now by watching me. And like, ‘cause she’s seen me before, and it’s like, “man, you’re like a Pit Bull, you just get right in their face don’t you?” And I’m like, “yes I’m not afraid of anyone.” And she’s like, “okay.” (P13, male, 41)

**Social learning.** Relationships can provide social support that replenishes self-control strength. Relationships can also provide an opportunity for social learning of self-control, including modelling self-control for children and gaining self-control by watching role models. “Like when I see friends and family members, like my sister, who—they’re successful—it’s like I think ‘I can do that too’” (P7, female, 25). Parents transfer self-control to their children by teaching about the boundaries of self-control: what is acceptable and unacceptable behaviour.

So that if I can help my daughter, because I owe that to her as her parent. As her father, I owe that to her to give her a sound basis for adulthood. You know, that right now she’s very good at going to school. She does pretty good in school. But, you know, the other things—like, I’m telling her, hey, when you’re out in the working world, when mommy and daddy move out and you’ve got this house all to yourself, you’re the one that’s going to have to clean it; you’re the one that’s going to have to get up and make your own breakfast and clean your dishes and, and, and, and, and, and. So that the school teaches them how to read and write, but parents have to teach people—or their children—how to live. (P3, male, 60)
Yeah, and this is what I’m trying to teach my soon too. He’s 13-years-old and he doesn’t have an iPhone or mp3 or an iPod. I don’t have a cell phone myself. And he said, “Why can I not have it?” I said, “Do you really need it? Think, do you really need it?” He said, “No.” Same thing, I don’t need a cell phone just because I have to have a cell phone. If I’m in the city, and I tell him in the olden times too, things happened, accidents still happened, emergencies still occurred, people somehow did things, right, so why not, you know. (P9, female, 42)

For some participants, this transfer of self-control across generations is a fairly unremarkable process, contributing to a lifelong sense of self-control. However, for other participants, the process of gaining self-control from parents can be a traumatic one.

I came out of a very—more, much more abusive situation compared to this one. So she was a very angry woman about that, that she couldn’t have her own daughter and also that she wanted Shirley Temple, and I was a tree climbing, frog catching kind of girl. So she would always, if I got angry, she would say, “Don’t you be angry with me,” and so I learned to suppress that, I learned a lot of self-control over my emotions at that point. (P10, female, 58)

**Self-control for others.** In addition to social support and modelling of self-control, self-control can occur as an other-directed behaviour. Specifically, self-control occurs with the goal of pleasing another person, to avoid hurting someone else, or to mitigate someone else’s loss of self-control. In these cases, the goal of self-control is other-directed rather than self-directed.

I’ve just been divorced this year and I have a five year old, so... And we still live together, my ex-husband and I, in separate quarters of our home. So I’ve been thinking about this question, but I think in the last while, like, self-control is to not—is to know not to have it out in front of her. (P12, female, 45)

I remember when my daughter was really young I wouldn’t vacuum, I wouldn’t do anything when she was sleeping because I thought, “The smallest noise will wake her and she needs to sleep.” Now I know differently that babies can sleep through anything, but...I remember I had bought a phone that had a light on it so that when you turned the ringer off the light would flash if someone called. And I’d sit there for hours and just stare at this phone waiting for it to ring, so I could answer it and not miss a call, right, that kind of thing. And I just went, you know, “I’m not doing anything while she’s sleeping,” and that was my self control at the time, because I just thought, you know, “I’ve got to think of her and she needs her sleep. I want her to grow and be healthy and not be deaf and not be scared and.... (P11, female, 46)
In these cases, the desire to care for or protect a child motivated highly controlled behaviour. Like parenting, having responsibility for the “wellbeing” of others requires using self-control to assist others, even when they don’t necessarily want to be helped. Participant 14 discussed how in his job as a union negotiator, he had to use self-control to make cognitively-based decisions on behalf of those who were more emotionally controlled.

It always felt like self-control, it always did. We’d have meetings and some of these people, they would just be all emotion. They didn’t really care about the issue, they just wanted to go out, and they just wanted to have an argument with somebody. So they’d come to the union meetings and they would have all these arguments and issues, and they’d be all fired up about what the company’s doing and how they’re trying to screw them. And you’ve got to try to explain it to them. “This is what they’re saying right now. This is what we expect to get. If you’re patient, give me your input and work with me and then we’ll get somewhere in the middle. But if you go back in screaming and yelling, we’re not going to get anything and the company’s not going to get anything either and we’ll be at a stand still.” So we have to try to convince them. (P14, male, 42)

Similarly, intimate relationships can lead to situations where the goals of self-control striving are other rather than self-focused. Participant 10 explained how her abusive upbringing taught her to avoid conflict, which has carried over to her adult relationships. Specifically, Participant 10 reports on how she uses self-control to avoid upsetting her boyfriend,

Our circumstance is unusual; we live right next door to each other, separate houses, separate apartment, separate landlords. But he’s, sort of, he’s here every night for dinner; we have dinner together every night. And so if there comes one of these arguments, disagreements, where I’ve lost my self control and ability to diffuse it, because he will never do that, he will say what’s on his mind, no filter, get it out there. Then he becomes really angry with me and then he pulls away and I won’t see him for a month, he won’t talk to me, he won’t look at me, he won’t acknowledge me if I pass him on the sidewalk. And I know this is part of his [mental] illness, I get that, but it’s hard to take and so again it comes down to my father’s message, “Do whatever it takes to keep so and so happy.” (P10, female, 58)

Thus, self-control can be replenished or maintained by the needs of others. Fear of judgement from others can serve a similar function.

Judgement from others. Concern about judgements from others can motivate controlled behaviour. Participant 9 explained how she tried to wait patiently to hear about whether or not her contract was being renewed in order to avoid the judgement of her superiors at work and to
demonstrate her worth as an employee, “I think it’s better to be, to have self-control, because at least you—like I say in a case like this, when you’re expecting somebody to give you an answer, you have shown your patience, right? You have a case, a strong case, in favour of” (P9, female, 42). Concern about judgment from others can affect any domain of self-control, from work performance to physical fitness.

I woke up one day and I wanted to be somebody and I was tired of people only looking at weight as opposed to who I really was and I thought “maybe if I just get rid of it then they will stop focusing on that and maybe just focusing on who I was as a person,” and it did work, it’s amazing, but it is sad. It is sad that you have to go that far but in reality, I was much more healthier but it is sad that that is what society does. (P4, female, 37)

The replenishing effects of social judgement are similar to the effects of social norms. However, when discussing social judgements, people talk about the outcome of violating those norms, rather than the norm or rule as a supportive factor. Specifically, when self-control fails, concern about judgement from others leads to feelings of guilt and shame. For example, Participant 7 explained that lapsing from a strictly vegan diet could be a risk because, “…what if someone—what if someone finds out that I’m not a good vegetarian. Like oh, I can’t call myself vegetarian because I had it” (P7, female, 25). Participant 16 uses the threat of shame to motivate herself in her graduate studies:

One method that I really like is imagining… Like I said, it’s the whole shame factor, either myself or, like, what other people will think of me. And so for school in particular I tend to use my advisor and the idea of my advisor, like, if she knew what I was doing right now instead of working or if she knew how little I had done today… (P16, female, 25)

Concern about the consequences of violation of social contracts and social norms can occur even if the relevant social norms no longer hold.

I always would think of it’s more of a risk by speaking up. I guess just being, you know, I’m kind of from the era, like, I’m 45 but I’m kind of from the era where you didn’t talk back, kids didn’t have... I mean, I had a great childhood, I had a great family, but that was the era I was in, you know, not that we were seen kids... Have you heard the saying, kids should be seen and not heard? It wasn’t like that, but kids didn’t talk back and I wasn’t allowed to talk back. So I think there’s a lot rooted in that actually, because I think you should be able to talk back in a respectful manner, but... So I think it roots from that. (P12, female, 45)
Worry about judgement from others can motivate momentary self-control, as not losing one’s temper in a stressful work situation. However, as with not speaking up for oneself as an adult due to rules laid down in childhood, worry about judgement from others can also motivate self-control over a period of years or decades. Participant 10 explained that as a single mother, she worried about her daughter’s opinion of her:

I said, you know, “If I’m going to be single forever...,” that I don’t want [my daughter] when she’s a grown up to look back and say, “Well, my mom was a slut because men came and went in her life and we had a revolving door in the apartment.” That was the last thing I wanted. So I was really picky as to how many people I dated and I had one person live with us in the 20 years that her and I were together. And, you know, and when she looks back and I’m going, “And how many people did I have in my life?” She’s like, “Oh, five or six.” And I’m like, “Okay, good, good,” so she can’t speak poorly of me. (P10, female, 58)

Thus, concern about judgement from others, even if that judgement only occurs in potential (e.g., future opinions of one’s daughter) can motivate controlled behaviour. People consider how others will attribute their behaviour, and act to shape their social behaviour accordingly. In addition, people also use social comparisons as a self-control strategy.

Social Comparisons

The second sub-theme I identified in the larger thematic area of the social context of self-control involved social comparisons. Many participants explained their own self-control in terms of comparisons to others, using downward and upward social comparisons to provide context for their own self-control successes and failures. Thus, social comparisons can act as a narrative device, allowing people to explain and justify their self-control successes and failures with reference to others.

**Downward social comparisons.** Downward social comparisons, or explaining how one’s self-control tends to be higher than that of others, can serve to highlight one’s own self-control successes and minimize one’s self-control failures.

I am pretty happy with...I probably have a small drink once a week. Yeah, I know I smoke, but that’s about it. I don’t gamble; don’t go down the pub...But then I haven’t got a lot of the...I guess that’s like quite a self-control because some people go “oh yeah, I’ll go down the pub three times a week and I’ve been on the gambling machines. I’ve got no money left at the end of the week and I’ve been working like a dog.” It’s like “well, get some self-control man.” (P5, male, 34)
Downward comparisons can be used to justify or rationalize the life domains in which one chooses to use self-control.

I don’t lose self-control, I do open my mouth a little bit more though, I’m a little bit more open minded to probably everything. And I feel like when somebody else is out of control, I feel like I’ve got more, just because of, maybe, past experiences or whatever. But going through five years of university wasn’t something too… So I mean in that case I do believe that I have a little bit more self-control than the regular cup of tea person. (P15, male, 31)

Downwards social comparisons can also serve an explanatory role, providing reasons and context for one’s own successful self-control strategies, in contrast to the failures of others.

And so I had X number of dollars per month to use and I kept going, you know, “Rent and food and clothing and whatever.” And it was okay. I didn’t like it at the time, I remember that, I hated it, I hated being poor and I hated living that way, but now when I look back I’m going, “That was not bad, that was a great learning experience.” Because I learned from it and I learned, you know, that self-control is not a bad thing and that other people who were in a similar boat—for example, I had neighbours because I was in a low-income area, my other neighbours didn’t do as well. Because they had to have a car that they couldn’t afford, they had to have the nice clothes. They would go out every Saturday night to the bars and whatever. And, you know, they’re still living that way. (P11, female, 46)

Downward social comparisons also facilitate setting long-term goals, using people with lower self-control as an exemplar of what not to do.

I’m graduating, and where I want to go, yeah, there’s a lot of—the whole—like I see myself like I want to get a career and I want to learn three different languages, and do martial arts, and be a firefighter or like a paramedic. I want to do all these things, but I’ve got to figure out how I’m going to get there, make a plan and then try and follow it, and that obviously requires some self-control, because I can’t just blow my money on going to Vegas. Or I can just be a piss rack for 20 years and wake up 28 and, yeah, hating myself. (P7, female, 25)

Thus, downward social comparisons can be used to separate oneself from undesirable others.

And a lot of times they were hot heads and you couldn’t [convince them the deal was good]. They would just get up and they would be angry and they’d storm out of the meeting room. But that’s what you get when you get that demographic, you get people—when they’re not educated enough to really use their words, then they use their emotions. (P14, male, 42)
Separating oneself from undesirable others can facilitate personal narratives of self-control, providing reasons and context for self-control successes.

No, it wasn’t [hard] for me because I was, I didn’t have the vices; I never smoked, I never drank, I didn’t do drugs. So because of those I think it was a lot easier. I didn’t even have the vices of coffee. I had none of those, so that’s rare. And those people with the vices, I’m sure it was harder for, and I know people that go to their grave, you know, keep saying, “I’ll quit,” and they never quit and it makes me cry because I know what they’re missing. (P17, male, 55)

**Upward social comparisons.** Somewhat less common than downward social comparisons were upward social comparisons, or discussing how one’s self-control relative to others is lower than it “should be.” Upward social comparisons tend to occur when people are struggling with self-control. In these cases, people often believe that they are alone in their struggles, or have more extreme problems than do others.

Like, I just think about it and it kind of makes me mad thinking why do I have to do that? Why can’t I get self-control like other people and just have, like, you know, the normal amount and not go crazy when you get around stuff like that? But I don’t know that I’ve—I don’t know if I’ve really changed in that thing. Like, I’m thinking next party am I going to be any better, I don’t know. Yeah. (P2, female, 47)

Participants reported that perceptions that one is struggling alone can lead to feelings of alienation and isolation. This process of upward comparison creates a relatively negatively-focused narrative for self-control.

I, kind of, look at my colleagues and, I mean, I don’t know if they’re just better at hiding it or something like that and so I don’t see, you know, their struggles, but it seems like they’re so put together and, like, none of them smoke, and none of them, you know, I don’t think they have problems with…I don’t really fit in well with the science students, I have to be honest, they’re a lot more, you know, plain and less neurotic, I’d have to say. (P16, female, 25)

However, after engaging in upward social comparisons, some participants then switched to rationalizing their uncontrolled behaviour, explaining why they their disposition or personality prevented behaving like other people. This strategy appears to remove many negative emotions from the process of upward social comparison. In reference to his struggles with self-control upon leaving home as a young adult, Participant 17 stated, “I knew that it wasn’t good and I knew that I was not the same as everyone else, but then, you know, on one hand they say the
creative are the ones that are different” (P17, male, 55). Similarly, Participant 4 explained that when she compared her gym progress to a colleague at work, she was upset until she realized that his personality allowed him to work hard all day and still visit the gym at night,

He went to the same gym. He lived on his own, he didn’t have a wife, he didn’t have nobody to worry about and so he went every single day but he was one of those people that were very, very calm, relaxed, life is good. I am not. I am one of those people that have to be in control at work. I need to know what is going on at all times and I don’t like to mess up. So I think I was much more hyper than he was so at the end of the day I was just physically and mentally exhausted where him, it was just like—life is good. I tried to compare myself and I was like “why can’t I do it if he is doing it?” but I think it had to do with the personality, the person that I was and how he was. (P4, female, 37)

Thus, through comparing one’s self-control to that of other people, one can gain a context or benchmark for one’s own self-control abilities. Of importance, this process creates a narrative account of how self-control operates in one’s life. Social comparisons allow for explanation of self-control successes and provide justification for self-control failures. However, social comparisons can also lead to feelings of inadequacy and isolation.

**Social Outcomes**

Participants reported that, depending on the circumstances, self-control and self-control failure may be associated with both social acceptance and social isolation.

**Social isolation**. Compared to social acceptance, social isolation was discussed by more participants as an outcome of self-control and self-control failure.

I was one of those keen people and I used to do my homework every night. Because I knew—I was very good at my long-term planning and I had friends who, you know, they’d go out and get drunk in a park on the weekends, as you do when you’re a teenager. And I was like I really don’t think that’s a good idea, like I don’t think that’s going to help me at all in my future. And I didn’t want to stay in the town that I came from, so I wanted to—yeah, so I did my math homework every night, because it wasn’t my strong subject. (P7, female, 25)

Participant 4 explained that when she was exercising regularly, “I didn’t really so much have a life. The balance, I kind of gave up the friends and everything. All I did was work and go to the gym” (P4, female, 37). Similarly, Participant 17 used social isolation as a deliberate strategy to improve his self-control:
And the people I hung around with, I got rid of some of those people because they were not a good influence. Sure, they were fashionable but they weren’t, you know, they weren’t role models, they weren’t, you know… You find people when you’re in your teens that are, sort of, your heroes or your idols, but they’re not when you’re in your 20s or 30s; they shouldn’t be, anyways. Like, I went from, you know, like a rock star to a Sister Theresa kind of feel, you know. (P17, male, 55)

Social isolation can be a way of insulating oneself from distracting or tempting influences, thereby increasing self-control strength. However, social isolation can also result from being ostracized by others due to loss of self-control. “A lot of times I just snap and blow up and it’s like everyone stays out of my way, because when I get mad apparently I’m very scary because I’m loud and I weigh 250 pounds I guess” (P13, male, 41). In addition, social isolation can result when one’s definition of what counts as self-control differs from that of their friends. Participant 15 explained that he lost several friends when they felt he wasn’t “over” the death of his fiancée even though he was dating again,

That’s basically what I used to remind myself that—some bad words I could say but I won’t. And it involved one of my close friends, actually, too, where they had begun talking behind my back and things like that too, saying things like that I’m not over the person that I was with a long time ago. And I went through hard-core counselling to be over that. I keep it in my heart and I want to get married, I want to be in love et cetera. And for me to say that I was ready was not enough for them and that’s too bad, I’m not going to prove myself, you know what I mean, like I don’t have to, right. (P15, male, 31)

**Social acceptance.** Whereas the majority of participants discussed social isolation with reference to self-control and self-control failure, only a minority of participants discussed social acceptance. Based on the responses of participants, social acceptance is more strongly associated with self-control than with self-control failure. In particular, social acceptance can motivate high self-control.

It was mostly a lot of guys in the gym and they were all buddy, buddy with you so it wasn’t a matter of “hey, I want to pick that guy up,” it was more about the acceptance and there was a lot of it. That kept me going. It was a great feeling. You just get an adrenaline rush. (P4, female, 37)

The desire to be accepted and included by others motivates behaviour that others will find desirable. When one’s friends value high self-control, one tends to behave accordingly; high
self-control can be a strategy for social acceptance. Similarly, in order to gain acceptance in social situations, one must be able to control one’s impulses and emotions.

As long as I’m a good person when I sit with people, people find me a nicer person not because of what I’m wearing or what I have, I think that’s more rewarding to me than having things. So I think self-control has given me that control over my own emotions and my thoughts too. (P9, female, 42)

Thus, social acceptance and social isolation can both motivate self-control strivings. Of interest, although participants discussed how certain social situations could deplete their self-control (e.g., a night of drinking with friends), no participants discussed how complying with peer pressure to lose self-control resulted in ongoing social acceptance.

Discussion

Self-control is a social as well as an individual process. Participants discussed social transmission of self-control, whereby social interactions can both deplete and replenish self-control. Participants reported that social conflict is a depleting experience. The view is in accordance with research showing that difficult or “high maintenance” social interactions are depleting (Finkel, Campbell, Brunell, Dalton, Scarbeck, & Chartrand, 2006). Particularly in intimate relationships, accommodation and compromise are more difficult after previous self-control depletion (Finkel & Campbell, 2001). Pressure from others can also deplete self-control and reduce motivation to engage in controlled behaviour. Participants reported that this happens in several ways. First, pressure to succeed in one life domain can leave little self-control for life domains that are less valued by socially important others. Expectations from a boss or supervisor can affect the balance of self-control striving between the conflicting domains of work and life. However, participants also discussed the more traditional concept of peer pressure, such that they experienced pressure from friends or family to engage in shared loss of self-control. Similarly, some participants reported experiencing pressure to discard self-control related to goals that were not valued by friends and family.

Social interactions can also replenish and maintain self-control. Participants described how they turn to colleagues, friends, and family for advice and support during stressful situations. Cooperative social interactions can improve executive function as compared to competitive social interactions and non-social controls (Ybarra, Winkielman, Yeh, Burnstein, & Kavanagh, 2010). Similarly, if the people around us do not share our vices, we have fewer
opportunities to lose self-control. Research shows that relationship satisfaction is highest when both partners have high trait self-control (Vohs, Finkenauer, & Baumeister, 2011). However, romantic partners may also select one another such that self-control across the partnership is complementary, with one partner having higher control than the other. The ideal situation appears to be one where partners can “out-source” self-control to one another (Vohs et al., 2011). Of interest, some participants in Study 2 reported how they share a common resource of self-control with their partner or spouse, such that one person’s self-control deficiencies are the other’s strengths.

Participants also described how self-control is transmitted through social learning and modelling. Simply watching or thinking of someone using self-control can increase one’s own self-control strength (Ackerman, Goldstein, Shapiro, & Bargh, 2009). For example, when people are primed with the idea of a highly persistent person, they in turn persist for longer on a physical measure of self-control than do people who receive a neutral prime (Martijn, Alberts, Merckelbach, Havermans, Huijts, & de Vries, 2007). Similarly, participants discussed both how they use role models or exemplars to motivate their own self-control striving how and they try to serve as role models for their own children.

Participants expected that they could teach their children how to use self-control, but also reported using a great deal of self-control in order to care for and protect their children. Similarly, some participants discussed how they use self-control to make up for the self-control deficiencies of others. In particular, there was a pattern in these data such that the person using more self-control felt responsible for the wellbeing of the person using less self-control. No participants discussed using self-control to make up for the deficiencies of non-dependents or strangers. Thus, it appears that people may be willing to share their self-control with important others, such that they use self-control to buffer others against the risky outcomes of self-control failure.

Negative, as well as positive, social interactions replenished and maintained self-control. Participants discussed how their fear of judgement from others motivated self-control striving, mediated by feelings of shame and guilt. Specifically, some participants anticipated disapproval or condemnation from others, were they to lose self-control, and accordingly tried to avoid feelings of shame and guilt by maintaining or improving their self-control efforts. Thus, whereas
social norms can make self-control easier and more automatic, concern about social judgement on norm violation motivates effortful self-control striving.

When people worry about the judgement of others, they assume that they do not measure up to the self-control standards of those others. Participants reported engaging in both downward and upward social comparisons, whereby they described how their self-control was either higher or lower than “most people.” However, these two forms of social comparisons appeared to serve different purposes. Downward comparisons allowed participants to justify their personal borders of self-control and explain their self-control successes (e.g., “I succeeded because I did X, I succeeded because I did not do Y”). Participants who made downward social comparisons were fairly confident in their self-control skills. In contrast, participants who made upward social comparisons felt that their overall self-control ability was much lower than it should be, and struggled to find reasons for the ongoing lapses in self-control. These participants didn’t necessarily report engaging in less controlled behaviour than those who made downward comparisons, but they were not satisfied with their own self-control strength.

In addition to socially transmitted self-control and social comparisons, participants’ discussion of the social context of self-control included social outcomes. Research shows that people may lose self-control to gain social acceptance (e.g., Rawn & Vohs, 2010), and social exclusion is a depleting experience (Mead, Baumeister, Stillman, Rawn, & Vohs, 2010). However, participants discussed having high self-control to gain social acceptance and social isolation as a replenishing experience. That is, self-imposed isolation can remove distractions and external pressures, making it easier to focus on personally important goals. In addition, participants discussed social exclusion not as depleting, but as an outcome of behaviour that creates group conflict. In contrast, behaviour that creates group cohesion creates social acceptance. Several participants discussed how they worked to control their behaviour in order to gain social acceptance, whether through participating in activities valued by a particular group (e.g., exercising at the gym) or by controlling one’s behaviour and emotions to avoid group conflict and gain respect from others.

Although self-control is typically considered as an intra-individual construct, self-control also operates in an interpersonal or social sphere (Vohs, Lasaleta, & Fennis, 2009). Study 2 highlighted the importance of the social context of self-control, such that participants described
how self-control is transmitted and compared across individuals. Of course, people cannot always rely on others to buffer them against the effects of self-control depletion. Once self-control has failed, how do people replenish it? In the next chapter, I explore three ways of regaining and maintaining self-control.
Chapter XIII: How do People Replenish, Regain, and Maintain Self-Control?

The line between having and losing self-control can be a subjective one. What one person counts as loss of self-control may be a nonissue to someone else. Furthermore, the distinction between “depleted” and “lost” self-control depends on how one perceives and defines self-control. However, regardless of how self-control is defined, people tend to have strategies for regaining self-control. In particular, with the main thematic area of “self-control replenishment,” I identified subthemes of thinking and monitoring, doing, and avoiding, which participants discussed as ways of regaining depleted self-control. According to participants in Study 2, these strategies are employed not only to regain lost self-control (e.g., after “falling off the wagon”), but also to maintain self-control over the course of days or weeks.

Thinking and Monitoring

Thinking and monitoring is a purely cognitive way of replenishing self-control, and involves both planning for the future and reflecting on the past. When self-control is being lost, it isn’t always a salient event for the person losing self-control. Instead, people sometimes tacitly give themselves permission to lose self-control, and effectively stop actively managing or monitoring their self-control for a period of time. When the loss of self-control has built up to a critical point, more rigorous monitoring of self-control begins again. “I have this whole dialogue in my head the whole night or the whole time after thinking, like, that was really dumb. Why did you do that? Like, I know I’m going to get it [self-control] back and—but I say to myself, like, I try and figure out why I do these things” (P2, female, 47).

I go, “shit, I shouldn’t have done that. I’ll do better next time, next meal we’ll get back on track.” And sometimes it happens, most of the time it does happen, sometimes, like yesterday, the whole day was shot, it was just... And so last night when the day was over I just said, “tomorrow’s a new day, we’re going to start the day off right, we’re going to eat the way we need to eat.” (P10, female, 58)

Once self-control failures have passed a certain point, internal pressure to realign one’s behaviour with one’s goals becomes overwhelming (i.e., motivation to use self-control strength increases), and one regains self-control.

I mean you have to, there has got to be a point where you wake up in the morning or you go to bed at night and you say, “enough is enough. I am going to quit smoking.” Or “I am going to stop eating junk food,” or “I am going to start
exercising.” There’s got to be a point where something clicks in your head and that is what it has always been for me. (P4, female, 37)

This renewed monitoring and awareness of self-control tends to coincide with a period of reflection, where people allow time to think over the loss of self-control.

…I don’t get angry long and I even question myself while I’m angry, “how can we shorten this, how can we stop this now?” Because sometimes I can stop it—usually I can stop it—before people I’m involved with, my wife or whoever I’m a little bit upset with, and I’m lucky that way. I can shut it down sooner and realise I’m in that mode. (P17, male, 55)

The ability to monitor behaviour in comparison to a set of goals or guidelines is essential to successful self-control. That is, if behaviour is not monitored, it cannot be controlled. More than just monitoring and stopping unwanted behaviours, using introspection as a replenishment strategy can involve active problem solving and deliberation.

I try and solve it…I think of what the issue is and I kind of break it down, pros and cons and whatever else, just because I know that people learn negative cognitive skills when they don’t deal with their problems. And over time they continue to use those negative skills etcetera, and their problems are never solved. So I like to dissect my information or my situations and I basically just look at the entire thing from the outsider’s point of view, sort of, subjectively, and I try and work it through, not leave it. Because leaving it just puts it in the back and where does it go? (P15, male, 31)

According to the strength model of self-control, active deliberation and decision-making should deplete self-control strength (Baumeister et al., 2007). For some participants, the process of thinking and monitoring can be difficult, requiring emotional control to avoid repercussions from the negative feelings brought on by considering one’s problems. However, although thinking over the situation can be difficult, demarking an event as inside or outside the borders of self-control can lead to overall replenishment.

Mostly working through, which sometimes can bring—can make you upset if you—depending what it is. You know, when you... Yes, depending what it is. But I try, you know, there’s that saying, your mind can only think of one thing at a time, so keep it positive. That, I repeat that a lot, I try not to let myself—especially when it’s something I can’t change. You know, I try to be aware of what I have control over and what I can change and what I can’t, just let it go. (P12, female, 45)
It appears that the process of reframing an issue or making a concrete plans to address problems facilitates subsequent self-control related to the problem or issue. A period of reflection and reframing can reduce inner conflict, which in turn can replenish self-control strength.

You just kind of let it wash over you. I mean you don’t really have to go and get it because it’s right there in your fore-mind anyway. And you can just spend some time and just let it kind of rattle around in there a little bit. And a lot of times you might not change your mind, you may not have a different outcome, but at least you’re able to let it go and you’re able to say, “that’s the best I could do” or “I’m okay with that,” or “this is what I need to do to make that different.” But it does kind of help you purge and get through the internal dialogue. (P14, male, 42)

Thus, for Participant 14, the depletion associated with active deliberation is offset by the ways in which this deliberation reframes the self-control situation. More broadly, it appears that positively reframing the situation, and becoming comfortable with one’s decisions, can make subsequent self-control easier. For some participants, this process of thinking and monitoring, reflection and reframing, can take place over a period of years.

Well I’ve thought long and hard over the years and it’s like why would I be so protective of things, why would I be so quick to feel threatened in certain situations, why for years did I confuse love with sex. And it’s like, after counselling and thinking about whatever, these are the answers I’ve come up with. And it’s always going to be a part of your life, but at least I’m realizing why things happen. And once you realize, or have an idea why things happen, you can then start to figure out, “okay, how do I control it the best I can.” (P13, male, 41)

However, self-blame can also be a powerful motivational tool. Reframing the situation to increase one’s personal responsibility for the loss of self-control can also replenish self-control strength. By manipulating and managing emotional reactions to a situation, it is possible to change one’s motivational outlook, thereby increasing self-control strength. Participant 16 reported that she typically deals with cravings for cigarettes by:

…getting angry at the situation. At myself, like… I don’t know what I was getting mad at sometimes, but it was just like, “no, I can do this,” and forcefully tell myself that, you know, this whole situation is stupid, the addiction is stupid, me not being able to… Not having the willpower is stupid and feeling, maybe not stupid, like, I’m not a bad person, but it was just really, kind of, “getting down on myself,” quote-unquote. And trying to kick myself, I guess, into doing it. And that usually helps is when I, kind of, stop feeling sorry for myself about something and become more aggressive with myself. (P16, female, 25)
By focusing on future goals rather than present circumstances, it may be that the context for current self-control striving becomes more salient, increasing motivation to use self-control strength. Participant 5 described how after his divorce, he maintained self-control in the present by focusing on the future:

I mean, I could have gone completely crazy, sold the house and spent all me money on drinking and gambling. [Instead], I was looking more towards where I was going to be going or where I wanted to go rather than sort of think about, like, at the minute, at the present time. I think that was more how I was making decisions, more looking into the future and what I wanted to do rather than… (P5, male, 34)

More broadly, some participants discussed making plans and goals and thinking about the future as a means of regaining or maintaining self-control.

I like to approach self-discipline looking forward because I find if I look back then I stop myself from pursuing that goal because then I will say “oh, if I failed this in the past,” then if I keep sticking on that idea then it will just give me no energy to continue looking forward in a disciplined manner, right? So I try to put my brain to be able to stick with being disciplined. Keeping the end goal in sight, kind of always reminding myself what am I doing this for. So in the short term if it causes a bit of pain or discomfort then I’ll just keep looking ahead and it gets you through. (P6, female, 36)

Thus, monitoring the present and thinking about the future are activities associated with self-control replenishment for many participants.

**Doing**

For some participants, the process of replenishing and restoring lost self-control involves engaging in replenishing activities. Meditation, exercise, writing, and listening to music all allowed participants to better deal with the stressors in their lives. These replenishing activities can aid in the process of thinking, reflection, and reframing.

For myself personally, I let things go by listening to certain kinds of music that calm me down. So I listen to loud music, it calms me down. And I guess it just takes the anger and the rage and whatever else is in there out. So certain skills learned through meditation, through just kind of pausing, and through reflecting on the event itself and to kind of tell yourself is it really worth it to shed the stress now, or later on in your own time. (P15, male, 31)
I used to run. Before I had knee surgery, I [wrecked] my ACL skiing, but I used to jog and that was really good for clearing your head. You can just get out there and you’d be gone for a half hour, an hour, or an hour and a half, whatever you want. And then that seemed to really help because you’re releasing your physical exhaustion and you get the endorphins going and it just kind of puts everything through your system. (P14, male, 42)

However, replenishing activities may also restore depleted self-control.

What I used to do and I try to do sometimes now, is I go out in the country and I’ll get some fresh air and I’ll be in the open. And I have learned that even moderate exercise, you know, swinging your arms around, a few sit ups or just a brisk walk and you start to feel better, because when your circulation slows you can become more moody, I have found that for myself and I’m sure for others. So getting in more air, a little bit of exercise and being in the open and not that confined feeling, really helps me a lot. (P17, male, 55)

In addition to replenishing activities, participants also talked about regaining or replenishing self-control by using self-control. That is, practicing self-control in the short-term may lead to higher self-control in the long-term. This process of restoring self-control by using self-control can involve abruptly giving up the unwanted behaviour. Participant 1 explained quitting smoking “cold turkey” was more successful than a process of slow reduction, “In my case, I think the—with the chop like that, it was easier. You know, trying to wean yourself, you can’t. It’s like I say, you do trysies and don’t workies” (P1, male, 58). A general mindset of self-control makes specific instances of self-control easier. “Personally, I think if you have a self-control on yourself, like a self-imposed restraint or constraint, whatever, it’s easier to deal with things in life. I think I’m more in control of things to make a decision” (P9, female, 42). Thus, rather than practicing self-control being depleting, it can make subsequent self-control easier:

No, it’s back in the saddle, good to go. Like, I’ll kind of moan about it for a few days and think whatever, but, no, once I get back at it, it’s like, okay, this is how I should—this is what I should be doing because this is how I feel good. (P2, female, 47)

Even when self-control is challenging, continual self-control striving can make things easier in the long run.

You learn how to manage your levels, I guess. And you learn how to use certain skills, like coping skills or things like that. And I think some people may not, maybe, agree with that because they just don’t want to deal with things at that
point, so they leave it until later or whatever. But for myself, if you don’t deal with it now then it’s just going to haunt you. (P15, male, 31)

Thus, self-control can be regained in the shorter term through engaging in replenishing activities and in the longer term by practicing self-control.

Avoiding

Unlike thinking, monitoring, and doing, avoiding as a strategy to restore or replenish depleted self-control is a more passive strategy. Avoidance can be mental or physical. Mental avoidance involves not thinking about the problem or planning for the future rather than dwelling on past self-control failures. Mental avoidance can involve a period of waiting before reconsidering an important decision.

I have a three-day rule. Before I make any major decision I usually wait three days, because I know that I usually change like… So as an analogy, I don’t know, if I met someone that I kind of liked, you know, then I would say like should I contact this person or what should I do? It’s like well, I know what I want to do right away and then I realize well, it’s not the best idea. Ok, I’ll wait three days and if I feel the same way then I’ll do it. I don’t know that’s just what works for me, and more often than not, I don’t usually end up contacting them. So I guess—yeah, because I feel in my head—I don’t know, I guess I feel like I need some self-control with that. That’s just sort of what’s worked for me as an adult. (P8, female, 29)

When using mental avoidance as a replenishment strategy, there is no process of active reframing. Instead, the personal “rule” of a three-day waiting period may create an implementation intention: a heuristic decision rule that guides behaviour (e.g., “I will wait three days before making important decisions”). Implementation intentions result in automatic (i.e., non-consciously controlled) behaviour (Gollwitzer & Brandstätter, 1997; Gollwitzer, 1999); because automatic behaviour is not under active executive control, it is not depleting (Webb & Sheeran, 2003). It may also be that the period of waiting allows for non-conscious deliberation, which may lead to automatic (i.e., non-depleting) decisions.

Mental avoidance can be similar to “doing” self-control, in that when the self-control strategy involves focusing one’s attention on the future and one’s goals rather than recriminating with oneself for past failures. However, with mental avoidance, the future focus can require some degree of denial about the past. Participant 6 reported that upon arising after a night on the town, she has learned to avoid dwelling on her feelings of guilt.
I know that if I stick with that feeling and thought and sort of beating myself up about it, I will completely lose more self-control that day. If I just put those thoughts out of my head and say “no, I can do this today. We are fine. Let’s just go forward like nothing happened.” So that is what I mean but putting the past, I like to be able to not look back. Focused forward. It’s a bit of denial, too, because it is kind of like “oh, I did that but just forget about it and it will go away.” So there is a bit of denial in it. There is a piece of that to it that helps me get through it. (P6, female, 36)

Mental avoidance can also be a preliminary step to thinking and monitoring self-control. Until time is available to reflect and reframe, mental avoidance is a useful strategy to get through one’s day.

I probably push things to the back of my mind until I’m ready to think them through. If I know that going through that at the time I can’t do it tonight, like I’m too tired, after [my daughter has] gone to bed, if I’m too tired that night to try and... If I know I’m not going to have the time to really iron it out, I don’t let my mind work on that project that night. (P12, female, 45)

Mental avoidance involves removing one’s focus from the problem at hand. Physical avoidance involves removing oneself from triggers for self-control failure, including people and tempting environments. Physical avoidance can also involve removal of triggers and temptations from one’s environment rather than removing oneself from one’s environment.

I mean, if I had home-baked stuff in the house—I mean I have chocolate in the house and that’s okay. But if I had, like, home-baked stuff, I would—I could not—like, I can’t have it in the house. So I know that already. Don’t have it there because if I do I will not be able to leave it alone. Like, just certain things I feel I don’t have very good control over. (P2, female, 47)

Physical avoidance can be a temporary solution, allowing oneself time to calm down and regain self-control. In addition, unlike mental avoidance, physical avoidance does overlap somewhat with replenishing activities, in that often a strategy for regaining self-control involves both physically removing oneself from the problematic situation and engaging in a replenishing activity. For example, Participant 14 reported that running was replenishing because “You’re unreachable, you’re just an island, and then you’ve got time to have these things kind of work themselves out” (P14, male, 42). Similarly, after her marriage broke up, Participant 8 reported that spending some time alone, away from the house she had shared with her husband, helped replenish her self-control:
It was good for me to get out of the house, to get away from the normalcy of everything, to not see his stuff, just to get away from everything. I was in a different house, I was eating food that I normally—just different, and I think that’s exactly what I needed. I wasn’t reachable, like my parents knew where I was, but nobody else really knew, and it was great just to get away from everything. (P8, female, 29)

Thus, the process of physical avoidance can facilitate thinking and monitoring of self-control.

I mean every marriage has got its problems too and yeah we blow up at one another and then it’s a matter of I head for the garage or I get away. I remove myself from the situation, think about it. And fortunately I’ve got a very understanding wife so that the next morning, you know, everything is nice and smooth again. So it’s a matter of removing and thinking, calming down, and then making the appropriate apologies or something to rectify the situation. (P3, male, 60)

It appears that finding a balance between action and inaction is central to replenishing self-control for some participants.

**Discussion**

According to participants in Study 2, they regain self-control by variously thinking and monitoring, doing, and avoiding. When people lose self-control, they first have to notice its loss. Participants described how self-monitoring must precede any attempt at self-control recovery. Eventually, monitoring and recrimination turns to planning and strategizing for self-control recovery. Planning can be as simple as deciding to start a diet the next day. However, planning can also be an active and lengthy process. Some participants described a process of introspection and reflection, clarifying and adjusting goals to avoid repeating earlier mistakes. Participants also reported using a process of self-talk (positive reflection) and self-blame (negative reflection) to replenish and regain self-control.

After losing self-control, some participants reported that they tend to engage in replenishing activities (e.g., exercise, writing, mediation). Of interest, these activities all seem to be associated with gaining an experience of “flow,” or a feeling of complete absorption (e.g., Jackson & Eklund, 2002; Nakamura & Csikszentmihalyi, 2002), rather than conserving use of self-control resources. Participants described how these activities helped them clarify their goals, and facilitated planning and goal implementation. In addition to activities that facilitate reflection and reframing, participants also reported that they regained self-control by practicing
self-control. Many participants believed that using self-control begets more self-control. The strength theory of self-control predicts that engaging in effortful control should be depleting. However, there is research showing that using self-control in a certain domain (e.g., avoiding tempting snacks) facilitates subsequent self-control in that domain (Dewitte, Bruyneel, & Geyskens, 2009). Similarly, O’Connell, Schwartz, and Shiffman (2008) found that successfully resisting the urge to smoke predicted lower rates of relapse. These findings run contrary to predictions from the strength model of self-control, and suggest that some modification is necessary.

When thinking and doing are not sufficient to replenish depleted self-control, participants reported that they engage in mentally and physically avoidant strategies. By putting off reflection and planning until more cognitive resources are available, mental avoidance can be a form of self-control conservation. Mental avoidance can also be relatively effortful; participants reported having to repeatedly steer their thoughts away from the topics they were trying to avoid. Avoidance as a replenishment strategy can also be physical. Avoiding people and places that trigger loss of self-control can be replenishing. Further, physical avoidance allows ample time for reflection and strategizing.

The ways in which participants discussed regaining lost self-control did not always fit into a limited reservoir model of self-control. In particular, the more active “replenishment” strategies endorsed by participants involved executive control and active deliberation, which should have further depleted self-control (e.g., Vohs et al., 2008). However, other participants discussed avoidant strategies that presumably give the depleted individual space to rest and regain depleted self-control strength. Of interest, participants viewed the process of regaining self-control not as replenishing a lost resource, but as a way of problem solving (i.e., solving the problem of low self-control). In addition, the process of replenishment overlapped with longer-term strategies for goal-setting and lifetime management of self-control.
Chapter XIV: General Discussion

In studies one and two, I used different yet complementary methods to investigate self-control and self-control failure. In Study 1, I used experimental methods to examine whether self-control depletion predicts autonomous risk and whether vitality serves as a barometer of self-control strength. The moment-to-moment processes detailed in Study 1 provided a framework for interpreting the experiential accounts of self-control and self-control failure in Study 2. The thematic analysis of self-control in Study 2 provides an understanding of people’s personal theories of self-control, detailing perceptions of why and how people succeed and fail at self-control. Furthermore, Study 2 provides context for understanding and explaining the results of Study 1. This research provides one of the first mixed method investigations of this topic, and adds to the literature by providing both an account of the short-term mechanisms of self-control failure and the longer-term contexts that influence self-control striving.

Risk is Revitalizing (Sometimes)

Based on predictions and research evidence from the strength theory of self-control and SDT, I was looking for evidence of revitalizing risk, the idea that people may indulge in risky, yet autonomous, choices to replenish depleted self-control. My findings in Study 1 did not support this hypothesis. However, participants in Study 2 reported using self-control failure as a reward or break. In the Study 2 data, exposure to risk was a salient anticipated outcome of self-control failure. Thus, there is some evidence that participants believe that loss of self-control can act as a risky but replenishing indulgence. Based on the results of Study 2, it appears that participants engage in risks that they believe to be acceptable. However, they also reported engaging in planned lapses of self-control, using risk exposure as a treat or reward. The need to relax and stop exerting self-control was important to most participants, even those who reported that they were unable to do so. It may be that depletion of self-control sometimes motivates risky behaviour only in certain life domains (e.g., eating, drinking, shopping), rather than a general propensity for risk-seeking. More research is needed to clarify the relation between self-control and risky behaviour. In addition, perceptions of risk and motivation to engage in risk may be important moderators of this relation.

Forced Risk is Depleting

Although I did not find any evidence of a relation between degree of voluntary risk and self-control in Study 1, I did find that forced risk is depleting. This finding was unexpected, as
the forced risk condition did not seem to require much cognitive control, nor was mood differently affected by the risk autonomy manipulation. Previous research has found that forced choices are depleting, whereas not making choices is not typically depleting (Moller et al., 2006; Vohs et al., 2006). The forced risk condition did not require choice, only compliance. To my knowledge, Study 1 provides novel evidence of depletion in an experimental condition involving forced risk. Similarly, in Study 2, participants attributed loss of self-control to lack of agency and autonomy. When people have no ability to control the outcome of a situation, and the situation has potentially negative outcomes, then they may feel as if they are being forced into a risk. In Study 1, actual earnings did not predict subsequent self-control strength. It may be that it is the potential for personal loss, rather than actual loss, that depletes self-control strength. Future research should examine how differences in autonomous and controlled risk differentially affect self-control strength. Furthermore, if perceptions of forced risk and lack of autonomy deplete self-control strength, then simply considering uncontrollable hazards in one’s daily environment could be a depleting experience. Longitudinal research using a daily diary approach to assessing perceived autonomy and subsequent motivation and self-control could help clarify how different environments support and hinder self-control striving.

**Motivation and Self-Control: Making Meaning and Justifying Risk**

SDT suggests that intrinsically and autonomously motivated behaviours will be less depleting. That is, SDT predicts the more that people find self-control to be intrinsically motivated, satisfying their needs for autonomy, relatedness, or competence, the less depleting and more vitalizing that self-control will be (Ryan & Deci, 2008). Currently, most research combining SDT and the strength theory of self-control has focused on autonomy and vitality rather than examining the domains of relatedness or competence (e.g., Moller et al., 2006; Muraven, 2008). My thematic analysis in Study 2 suggests that feelings of competence and relatedness are associated with both self-control and self-control failure; results from studies one and two suggest vitality is not a reliable indicator of this process.

Of interest, my findings from Study 2 suggest that in addition to feelings of competence maintaining self-control strength, people expect that using self-control may lead to feelings of competence. Results from Study 2 suggest that successful self-control creates meaning in people’s lives and that they choose activities that make them feel competent. Successfully and effortfully exerting self-control was associated with pride and perceptions of competence.
However, feelings of competence did not rule out using loss of self-control as a reward or break. It may be that feelings of competence that occur after self-control success are also associated with feelings of “deserving” to lose self-control, such that engaging in risky behaviour becomes more justifiable.

Furthermore, the results of Study 2 suggest that, in particular, social context is often attributed as a predictor of self-control success and failure. Rather than self-control coming from a personal reservoir, people described how they share self-control resources with other people. My thematic analysis in Study 2 partially supports the predictions from SDT that satisfying one’s need for relatedness maintains self-control (Ryan & Deci, 2008). For example, participants discussed social support as an important means of maintaining and regaining self-control. However, I also identified sub-themes suggesting that people use social isolation to increase self-control strength, suggesting that satisfying a need for relatedness is not a consistent path to maintaining self-control. It may be that social goals interact with other goals (e.g., health, safety) to moderate people’s assessment of risk.

The idea of “controlled” or “moderated” risk was explored by Harling (2007), whose phenomenological analysis of recreational drug users suggested that drug use is facilitated by social ties and can fulfill a social function. However, drug users engaged in a cost-benefit analysis prior to drug use, such that risk levels were kept within acceptable parameters. Rawn and Vohs (2010) similarly argue that that risky behaviour fulfils a social function, and that initial experiences with aversive and risky substances (e.g., drinking, smoking) can be better understood as socially motivated self-control striving, rather than a loss of self-control. Thus, better understanding the motivations for feelings of vitality, rather than feelings of vitality themselves, may help in predicting domains of self-control efforts.

**Vitality and Mood Are Not Barometers of Self-Control**

There was no evidence that any of the depletion effects in Study 1 were mediated by vitality. Instead, my results suggest that vitality is not entirely distinguishable from mood. Previous research has shown that vitality but not mood mediates the relation between perceived autonomy and self-control strength (Muraven et al., 2008), and vitality (but not mood) is discussed as an experiential form of self-control strength, resulting from autonomous and intrinsically motivated activities (Laran & Janiszewski, Ryan & Deci, 2008; Sharp, 2009). In
contrast, my results in Study 1 suggest that vitality does not necessarily covary with either self-control strength or perceived autonomy. Although changes in motivation may sometimes cause measurable changes in vitality but not mood, my findings suggest that mood and vitality may be more closely related than self-control and vitality or autonomy and vitality. That is, mood and vitality had very similar patterns of change over the course of Study 1, but neither of these variables interacted with the experimental conditions of depletion and risk autonomy.

Supporting the view that vitality is not a reliable barometer of self-control strength, in Study 2, feelings of vitality were not uniquely associated with either self-control or self-control failure. Instead, participants reported feeling vitality both in situations where self-control was lost and in situations where self-control was maintained. However, relatively autonomous self-control was generally described as being easier and more enjoyable than less autonomous self-control. Furthermore, the negative emotions associated with having too much self-control involved feelings of constriction and pressure, suggesting that self-control can provoke more negative emotions when perceived autonomy decreases. Taken together, the findings of studies one and two suggest that lack of autonomy does undermine self-control striving, but subjective vitality is not a reliable mediator of this effect. More research is needed to clarify the construct of vitality and its relation to mood, arousal, and self-control. However, based on my findings from Study 2, I argue that momentary changes in vitality and mood capture only part of the broader context of self-control. Instead, future research should use both longitudinal and qualitative designs to explore the ways in which self-control is embedded in a longer-term context of goals and motivation.

Self-Control Takes Time

In Study 2, I found that people’s perceptions, attributions, and explanations of self-control and self-control failure only partially map onto the construct as defined by the strength model of self-control. In particular, the strength model of self-control views self-control failure in a very short-term context. Studies of self-control depletion typically study fluctuations of self-control over a few minutes or hours (Hagger et al., 2010). A few studies have tracked self-control over a few weeks or months (e.g., Muraven et al., 2005; Oaten & Cheng, 2007). This approach to studying the strength model of self-control is consistent with its conceptualization of self-control as a limited resource. That is, according to the strength model, self-control is
depleted and replenished on a moment-to-moment basis, although the self-control reservoir can be expanded over time through practice.

The strength model of self-control does a good job of describing the mechanism of moment-to-moment fluctuations in self-control. However, most people do not just experience self-control in the very short-term. Instead, they report that monitoring and evaluation of self-control occurs in a longer context. My research adds to the current literature by providing and account of the day-to-day and lifetime contexts of self-control and self-control failure. The limits and boundaries of self-control change over time, along with the limits of acceptable risk and motivation to exert self-control. Furthermore, reflecting on their self-control failures and successes across a lifetime provides people with a narrative structure for explaining who they are.

Self-Control: State of Mind and State of Motivation

Moreover, my findings suggest that most people cannot remove self-control from its motivational and affective context. That is, when people think about self-control, they also think about how self-control makes them feel and the reasons that they use self-control. When trying to replenish self-control, the majority of participants in study two reported trying to sort out their goals and motivation rather than focusing on momentary feelings of depletion. The strength model of self-control does not currently include a component of motivation; instead, motivation is considered separately from the self-control construct. Some researchers have proposed expanding the strength model of self-control to include considerations of motivation (Moller et al., 2006), even to the extent of arguing that “depletion effects may be understood in motivational terms” (Robinson et al., 2010, p. 192). Based on my thematic analysis in Study 2, I agree with Robinson and colleagues that motivation is inextricably linked to the self-control construct. Based on my findings in Study 1, I caution that assessing task motivation in the lab is a poor proxy for motivation related to actual goals.

Self-control is indeed very much a state of mind (Job et al., 2010), and as such, self-control is both broader and more elusive than the construct described by the strength model. The extent to which self-control is depleting depends not only upon people’s motivation to exert self-control, but also upon their personal theories of how self-control operates. Future experimental research using the strength model of self-control should assess motivation for self-control and
personal theories of self-control along with mood and arousal as control variables. Better yet, future researchers should work to integrate motivation into the strength model of self-control. Research using strength model of self-control has yielded a better understanding of how self-control operates in daily life, but cannot answer questions about why people bother using self-control in the first place.

Self-control researchers should consider using mixed methods investigations of self-control and self-control failure to answer questions not only about the mechanisms of self-control, but also the context. By using quantitative and qualitative assessment of motivations for specific acts of self-control and self-control failure, it may be possible to clarify the relation among these variables. However, a better understanding of the goals underlying self-control and self-control failure may be gained by examining motivation across as well as within life domains. For example, self-control failure in one life domain may reflect self-control success in another.

If self-control behaves as a self-fulfilling prophecy, then people’s beliefs and personal narratives about how self-control operates will have a very real effect on their lives. These personal narratives of self-control shape how people define self-control success and failure relative to their goals and the structure of those goals. As humans, the stories we tell ourselves about why we succeed and why we fail influence how likely we are to try and try again to achieve our goals and, ultimately, allow us to describe who we are.
References


Appendices
Appendix A: Study 1 Overview

Legend:
- Manipulation
- Questionnaire
- Behavioural Measure of Self-Control
Appendix B: Subjective Vitality Scale (SVS)

Please respond to each of the following statements in terms of how you are feeling right now. Indicate how true each statement is for you at this time, using the following scale:

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1. At this moment, I feel alive and vital.
2. Currently I feel so alive I just want to burst.
3. At this time, I have energy and spirit.
4. I am looking forward to each new day.
5. At this moment, I feel alert and awake.
6. I feel energized right now.
Appendix C: Brief Mood Introspection Scale (BMIS)

Circle the response on the scale below that indicates how well each adjective or phrase describes your present mood (your mood **right now**).

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<tr>
<td>Drowsy</td>
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<td>XX</td>
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<td>Happy</td>
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To score the BMIS, convert the Meddis response scale to numbers (XXX to VVV represent 1 to 7).

- The mood valence factor (pleasant vs. unpleasant) is created by summing the responses for Active, Calm, Caring, Content, Happy, Lively, Loving, and Peppy with the reverse scored responses for Drowsy, Fed up, Gloomy, Grouchy, Jittery, Nervous, Sad, and Tired.

- The arousal factor is created by summing the responses for Active, Caring, Fed up, Gloomy, Jittery, Lively, Loving, Nervous, Peppy, and Sad with the reverse scored responses for Calm, and Tired.
Appendix D: Balloon Analogue Risk Task (BART) Instructions

Instructions

There will be 30 balloons, one at a time, on the screen. For each balloon, you enter the number of pumps you want to have the computer pump up the balloon in a box located below the balloon.

BUT remember, balloons explode if you pump them up too much. The explosion point varies across balloons, ranging from the first pump to the 128th pump. The ideal number of pumps is 64. What that means, is that if you were to make the same number of pumps on every balloon, your best strategy would be 64 pumps for every balloon. This strategy would give you the most money over a long period of time. However, the actual number of pumps for any particular balloon will vary, so the best overall strategy may not be the best strategy for any one balloon.

You earn MONEY for every pump. Each pump earns 1 cent. But if a balloon explodes, you lose the money you earned on that balloon. To keep the money for a balloon, stop pumping before it explodes and click on the box labeled "Collect $\$$".

After each $\$$ collection or explosion, a new balloon will appear.
Summary

* You type in how many pumps you want the computer to make
* You earn 1 cent for each pump if the balloon does not explode
* You save money for a balloon when it does not explode
* The best overall strategy is 64 pumps
* There are just 30 balloons

Now, do you have any questions?

When you are ready, click here to begin
Appendix E: Balloon Analogue Risk Task (BART)

*** Remember ***
Must be between 1-128
64 is best overall strategy

80
Explosion point for last balloon

70
Type in the number of pumps above and click here to confirm
Must be between 1-128

Total Score | $1.38
Cents per Pump | 1
Balloon Number | 5
Appendix F: BART Congratulations Screen

Congratulations!!! You earned $1.64

Click to End

*** Remember ***
Must be between 1-128
64 is best overall strategy

52
Explosion point for last balloon

Must be between 1-128

Total Score $1.64
Cents per Pump 1
Balloon Number 30
Appendix G: Intrinsic Mood Inventory (IMI)

TASK EVALUATION QUESTIONNAIRE

For each of the following statements, please indicate how true it is for you, using the following scale:

1 2 3 4 5 6 7
not at all somewhat very true true true true

1. While I was working on the task I was thinking about how much I enjoyed it.
2. I did not feel at all nervous about doing the task.
3. I felt that it was my choice to do the task.
4. I think I am pretty good at this task.
5. I found the task very interesting.
6. I felt tense while doing the task.
7. I think I did pretty well at this activity, compared to other students.
8. Doing the task was fun.
9. I felt relaxed while doing the task.
10. I enjoyed doing the task very much.
11. I didn’t really have a choice about doing the task.
12. I am satisfied with my performance at this task.
13. I was anxious while doing the task.
14. I thought the task was very boring.
15. I felt like I was doing what I wanted to do while I was working on the task.
16. I felt pretty skilled at this task.
17. I thought the task was very interesting.
18. I felt pressured while doing the task.
19. I felt like I had to do the task.
20. I would describe the task as very enjoyable.
21. I did the task because I had no choice.
22. After working at this task for a while, I felt pretty competent.

Scoring information.

Interest/enjoyment: 1, 5, 8, 10, 14(R), 17, 20
Perceived competence: 4, 7, 12, 16, 22
Perceived choice: 3, 11(R), 15, 19(R), 21(R)
Pressure/tension: 2(R), 6, 9(R), 13, 18
Appendix H: Interview Guide

Our conversation today is going to be about self-control and lack of self-control.

1. What does self-control mean to you?
   - What kind of timeline do you feel that self-control operates in (e.g., minutes/hours/days/months/years)?
   - What are some synonyms for self-control?

2. Tell me about a time when you had a lot of self-control.
   - How did you behave? Why do you think you behaved like that?
     - Probe: What led up to this?
     - Probe: What followed?
     - Probe: Do you feel like it’s a risk when you behave in this way?
   - How did you feel in this situation? Why?

3. Tell me about a time when you had very little self-control.
   - How did you behave? Why do you think you behaved like that?
     - Probe: What led up to this?
     - Probe: What followed?
     - Probe: Do you feel like it’s a risk when you behave in this way?
   - How did you feel in this situation? Why?

4. [Leading from topics in Q3] How did you get your self-control back?
   - How did you behave? Why do you think you behaved like that?
     - Probe: What led up to this?
     - Probe: What followed?
     - Probe: Do you feel like it’s a risk when you behave in this way?
   - How did you feel in this situation? Why?
   - Are there other ways you try to restore self-control?

5. Is there anything else you want to tell me about self-control or any other topic?

6. I’m going to finish off by collecting some basic demographic information, so that I can develop a profile of participants. Please complete the following questionnaire (give questionnaire).

7. Debrief and thanks.
Appendix I: Demographic Questionnaire

1. What was the time and date of your interview appointment? _______________________

2. What is your gender?
   - Male
   - Female
   - Other/Prefer not to answer

3. What is your age (in years)? __________________________

4. What is your marital status? __________________________

5. What is your ethnic background? ______________________

6. What is your occupation? _____________________________

7. What is your family gross income per year?
   - Under $20k
   - Between $20k and $29k
   - Between $30k and $39k
   - Between $40k and $49k
   - Between $50k and $59k
   - Between $60k and $69k
   - Between $70k and $79k
   - Between $80k and $89k
   - Between $90k and $99k
   - $100k or more
Appendix J: Thematic Map

RQ1: How do people perceive self-control?
- Definitions
  - Choices
  - Guidelines
- Timing
  - Moment-to-moment
  - Day-to-day
  - Years to lifetimes
- Limits and difficulty
  - Thinking or feeling
  - Self-control is hard
  - Self-control is easy

RQ2: What are the anticipated outcomes of self-control and self-control failure?
- Emotional outcomes
  - Loss of self-control (pleasure, exhilaration, guilt and fear)
  - Successful self-control (calming, thrilling, pressurizing)
- Risk exposure and avoidance
  - Losing self-control is risky
  - High self-control avoids risks
- Motivational outcomes
  - High self-control: making meaning and constricting wellbeing
  - Low self-control: rejuvenation and spillover

RQ3: What are internal attributions for self-control and self-control failure?
- Replenishing factors
  - Learning and experience
  - Goals and guidelines
  - Agency and autonomy
- Depleting factors
  - Childhood experience
  - Disregarding goals
  - Loss of agency
  - Depleting moods
  - Lack of resources

RQ4: What are external attributions for self-control and self-control failure?
- Environment or situation
  - Consumerism and external depletion
- Social norms and external regulation

RQ5: How does self-control operate in a social context?
- Depleting social interactions
  - Relationship problems
    - "Peer" pressure
  - Social support
  - Social learning
  - Self-control for others
  - Judgement from others
- Replenishing social interactions
  - Social comparison
    - Downward
    - Upward
  - Social isolation
  - Social acceptance

RQ6: How do people replenish, regain, and maintain self-control?
- Thinking and monitoring
  - Doing
  - Avoiding

How do people experience self-control and self-control failure?