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***Self-Regulation of Eating Behavior When Facing a Motivational  
Dilemma: The Role of Self-Compassion and Coping Planning***

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## Abstract

Many premature deaths and health problems could be prevented by adhering to a healthy diet, however, many people lack the self-regulation needed for maintaining healthy behaviors. Goal-conflicting situations (i.e., when a person needs to decide between one of two conflicting goals) are an obstacle for self-regulation, while coping planning is found to be useful in these situations since it entails creating detailed plans on how to overcome potential barriers. Based on the Justification-based model of self-regulation failure, it was proposed that being highly self-compassionate might enable justifying violation of one's long-term goal and cause self-regulation failure. Thus, the aim of the present study was to explore the relationship between self-compassion, coping planning and self-regulation of eating behavior in goal conflicting situations among adults. Additionally, the study aimed to investigate the potential moderating role of coping planning in the relationship between self-compassion and self-regulation. In this cross-sectional study, 473 adults (79.4% European) with intention to regulate their dietary behavior completed an online questionnaire measuring self-regulation of eating behavior in goal conflicting situations, self-compassion and coping planning. Both self-compassion ( $r = .30, p < 0.001$ ) and coping planning ( $r = .23, p < 0.001$ ) were positively associated with, and predicted higher self-regulation of eating behavior,  $R^2 = .15, F(3, 469) = 27.7, p < .001$ . No moderation effect of coping planning was found. Findings from the study imply the complexity behind the self-regulatory process.

*Keywords:* self-compassion, self-regulation of eating behavior, coping planning, Justification-based model of self-regulation failure, self-regulation dilemma.

## **Self-Regulation of Eating Behavior When Facing a Motivational Dilemma: The Role of Self-Compassion and Coping Planning**

In the health behavior field, it is widely recognized that nearly 50% of mortality rates could be prevented or reduced if people adhered to a healthy lifestyle, most important being a healthy diet and regular exercise (van Dam et al., 2008). Further, by being linked to heart disease, stroke, type 2 diabetes and certain types of cancer, obesity is one of the leading causes of preventable, premature deaths (Centers for Disease Control and Prevention, 2020). Obesity not only severely affects health, but also brings high expenses to governments and individuals as well (Cawley & Meyerhoefer, 2012). Yet, 42.4% of adults in the US are obese (Hales, 2020), around 50% of adults in Sweden are considered overweight or obese (Public Health Agency of Sweden, 2020), and approximately 603.7 million people around the world are obese (Afshin et al., 2017). Correspondingly, the latest national measures of eating habits indicated the presence of unhealthy dietary patterns among most adults in Sweden in 2011: Four out of ten adults engaged in excess sugar consumption and eight out of ten included too much saturated fat in their diets whilst having inadequate fiber intake (Livsmedelsverket, 2020). Although highly preventable, obesity rates are expected to increase by 45% until 2030 (Kelly et al., 2008), which is not surprising since most of the people who engage in some type of weight-control behavior fail to maintain their weight loss long-term (Jeffery et al., 2000).

Consequently, researchers have recognized the importance of understanding the factors that influence the successful adoption and maintenance of desired dietary and overall health behaviors (Hagger, 2009; Hagger et al., 2012a; Milne et al., 2002). Factors such as intention, commitment, type of goal (mastery vs. performance goal), feasibility and different types of motivations have been linked to this process (Mann et al., 2013). Aside from these, self-regulation emerged as a fundamental component in the maintenance of health behaviors

(Hennessy et al., 2020; Mann et al., 2013; Protogerou et al., 2020; Sniehotta et al., 2005a), identified as a crucial factor needed for behavioral control in the face of internal and external (environmental) cues (Forman & Butryn, 2005).

However, researchers have highlighted the complex nature of this construct and noted that, in order to enhance health behavior, understanding the various psychological processes behind self-regulation and examining the theoretical models that can explain the self-regulatory process is required (Mann et al., 2013; Hennessy et al., 2020; Protogerou et al., 2020). The purpose of the current study is to further expand on the knowledge regarding the factors that can undermine or support self-regulation of eating behavior. Thus, the present study aims to explore the relationship between self-compassion, coping planning, and self-regulation of eating behavior in goal conflicting situations among adults. Additionally, the study aims to investigate the potential moderating role of coping planning in the relationship between self-compassion and self-regulation of eating behavior.

### **Theoretical Framework: Justification-Based Mechanism of Self-Regulation Failure**

Self-regulation can be understood as an intentional act that requires effort to avoid learned or habitual responses to situational cues (Mann et al., 2013), which also implies the ability to move on from temptations in order to accomplish long term-goals (Fischbach et al., 2003). Generally, theories trying to explain self-regulation failure have focused on the strength of impulses versus self-control to explain why people give up on their long-term goals and most theories propose two opposing systems. One is a deliberate, slow and rational system, while the other is an impulsive, fast and emotional one. These systems are often interpreted in a way that the impulsive system is mainly responsible for self-regulation failure while the rational system mainly guides behavior in line with one's long-term goals (De Witt Huberts et al., 2014).

The Justification-based mechanism of self-regulation failure is a novel theoretical framework that is built on empirical evidence highlighting that rational systems can also facilitate self-regulation failure (De Witt Huberts et al., 2014). The Justification-based mechanism of self-regulation failure refers to people's ability to rationally develop and employ justifications for one's behaviors that are not in line with one's long-term goals. In other words, people can use their slow, deliberate and rational system to create excuses before engaging in the actual behavior, which then allows them to violate their long-term goals (i.e., self-regulation failure). This theoretical framework posits that people fail to accomplish their long-term goals not due to lack of willpower or high impulses nor lack of self-control, but because they engage in a mental process of creating reasons for giving in to temptations. This process occurs prior to engaging in the actual goal transgression and gives them a reason to do so. Self-licensing is a similar construct that also involves creating excuses for one's discrepant behavior before engaging in goal transgression (De Witt Huberts et al., 2012). In others words, this concept postulates that people are more likely to make a choice that can easily be justified, meaning that there is a higher chance that someone will pick hedonic goods when the context surrounding the decision allows them to justify their choice (Prinsen et al., 2016).

### ***Previous Research on Justification-Based Mechanisms of Self-Regulation Failure***

Results from studies exploring these ideas point towards the importance of considering justifications as an important mechanism involved in self-regulation failure. For example, De Witt Huberts et al. (2012) found that having a licensing cue led to higher consumption of snack intake. After controlling for emotional state and hunger, the participants who believed that they had completed a more demanding task consumed on average 26 more grams of snacks than participants who completed the same task but were led to believe it was an easier task. Similarly,

in a series of studies, Fishbach and Dhar (2005) found that perceived goal progress acted as a justification for goal-transgression behavior and indulgence. Participants who perceived themselves as being close to their weight loss goal chose a high-palatable food as a gift more often. Further, in a cross-sectional study that included 458 participants, Taylor and colleagues (2014) used a longitudinal design to measure the extent to which the use of justifications could undermine participants' intentions to eat healthy. Results indicated that the use of justifications predicted a higher consumption of unhealthy snacks for individuals who had strong intentions to restrain from unhealthy foods, yet, the use of justifications did not influence the snack consumption of those participants with weak intentions to avoid unhealthy foods. In the same series of studies, Taylor and colleagues identified six ways in which people can justify indulgence to themselves: *availability* (e.g., "I'll eat it because it's there"), *compensatory behaviors* (e.g., "I'll make up for this later in the gym"), *exceptions to the norm* (e.g., "I never do this, it's okay to do it now"), *deservingness* (e.g., "I've had a horrible day, I deserve this"), *curiosity* (e.g., "It looked nice on television"), and *irresistibility* (e.g., "It looked so tempting").

It is important to highlight that the involvement of a situation that represents a self-regulation dilemma is needed in order to engage in this justification process (De Witt Huberts et al., 2014). Self-regulation-dilemmas involve a conflict between two incompatible motivations, for example, having a strong hedonic pull for indulgence and a long-term goal of healthy eating at the same time (Hofmann et al., 2009). The following section will describe three highly common goal-conflicting situations that can act as a motivational dilemma: emotional distress, social environments and habitual behavior.

### ***Previous Research on Motivational Dilemmas and Theoretical Models***

**Emotional Distress.** The notion that emotional distress causes (over)eating, is very familiar in people's everyday life. The Boundary Model of Eating Behavior (Herman & Polivy, 1984) proposes that the experience of strong emotions can impair the regulation of eating and induce overeating. In fact, Elliston et al. (2017) found negative affect to be one of the most influential factors associated with increased likelihood of snacking. For example, daily struggles, such as interpersonal and work-related problems were strongly associated with increased consumption of nutrient-poor foods (O'Connor et al., 2008). Moreover, a study found that non-smokers reported eating more when they perceived their stress levels as high (Meule et al., 2018). From a neurocognitive perspective, mechanisms that primarily evolved to promote survival still exist in modern humans' neurological make-up. Food, especially of the palatable type, still activates brain reward systems (Johnson, 2013), which can result in a learned association between certain food and mood repair (Alzheimer & Urry, 2019). Baumeister et al. (2007) suggested that, in this way, negative affect can seem as if it directly caused eating, but it may act as a motivator for a person to act in a way to achieve feeling better.

**Social Environment.** Apart from emotional distress, there is evidence that other people and the context itself can strongly affect individuals' own eating behavior. For example, social context was found to influence how much people ate and what people chose to eat (Elliston et al., 2017; Herman et al., 2003). Further, the goal conflict approach to eating behavior (Papies et al., 2008; Stroebe et al., 2008) postulates that goal-conflicting situations are mainly triggered by the exposure to attractive food cues. With this in mind, it is important to consider that during social situations, tempting foods are often available (i.e., cake during birthday celebrations). To investigate the role of one's environment on eating behavior, Prinsen and colleagues (2013) explored the predictive power of environmental signals in terms of norms regarding eating. In a

series of three studies, environmental cues pertaining to whether people ate and what foods they consumed were shown to have a significant impact on others' decisions to eat and what to eat (Prinsen et al., 2013). The third study used an experimental design that incorporated a manipulated environmental cue (healthy vs. unhealthy snack wrappers) and goal prime (healthy vs. hedonic eating magazine) to measure participants' eating behavior and found that environmental cues related to snack choice were predictive of participants' eating behavior, independently on the temporarily salient eating goal (created with magazines). Another set of studies exposed participants very briefly (for 23 ms) to hedonic food words (e.g., chocolate, delicious) and then measured cognitive accessibility of their dieting goal. Restrained eaters "forgot" about their dieting goal without being aware, which provided evidence that mere exposure to attractive food cues can facilitate inhibition of the dieting goal and therefore, eating (Stroebe et al., 2008). In fact, attractive food cues are found particularly influential for restrained eaters (i.e., people who are dieting), compared to unrestrained eaters (Fedoroff et al., 2003; Papies & Hamstra, 2010).

**Habitual Behavior.** It is widely recognized that habits are a large part (around 40%) of everyday life, including daily eating behavior (Riet et al., 2011; Wood et al., 2002). Even more, Naik & Moore (1996) found that approximately one half of total food consumption is actually habitual. A more recent study using a large Dutch community sample ( $N = 1383$ ) stressed the importance of the impact of habits concerning unhealthy snacking behavior, after finding habit strength as the most important predictor, outperforming food-abundant environment, intention and perceived health consequences (Verhoeven et al., 2012). Similarly, in two correlational studies, future eating behavior was related to intentions only when habits were weak, but not when the habits were strong (Danner et al., 2008), which is in line with results from a



longitudinal study indicating that habits inhibit internal control and promote external control in eating behavior (Ohtomo, 2013). Ohtomo (2013) provided the interpretation that habitual unhealthy eating behavior decreases conscious control and causes shifting to an autonomous reaction.

To summarize, the Justification-based mechanism of self-regulation failure postulates that people use their slow and rational system to create excuses for behaviors that are not in line with one's long-term goals (De Witt Huberts et al., 2014). Simultaneously, motivational dilemmas, such as emotionally distressing situations, social environments and habitual behaviors, act as a trigger for this process (Baumeister & Heatherton, 1996; Hofmann et al., 2009). In other words, to assess factors related to the self-regulation of eating behavior, the presence of goal-conflicting situations is needed.

### **Coping Planning**

As described in previous sections, justifications can endanger the performance of intended behavior in motivationally conflicting situations. For example, an individual can have an intention of eating healthy, however, this does not mean that the intention will be translated into action. With this in mind, Sniehotta et al. (2005b) found planning to be beneficial for the process of translating behavioral intentions into actual health behavior, while differentiating it into action-planning and coping-planning, where each has a different role. Action planning helps to identify when, where and how a specific behavior will be implemented (e.g., "For the next four weeks, I will count my calories with an app"), and coping planning helps anticipate potential problems and create a detailed plan on how to overcome them (e.g., "I will buy fruits now to have them available when I crave something sweet"; Scholz et al., 2008). This means

coping planning can help a person to overcome obstacles by anticipating personal risk situations (Sniehotta et al., 2005b).

### ***Previous Research on Coping Planning***

Empirical evidence supports the claim that planning is a vital action for behavior change. In a 5-week longitudinal study, action and coping planning accounted for significantly more behavior variance in participants' physical activity levels than intentions alone did (Scholz et al., 2008). Results suggest that intentions alone are not enough to engage in behavior change, which points to the importance of these two constructs. The researchers found action planning to be a good predictor of behavior when participants intentions were high, while coping planning acted as a strong self-regulation strategy to keep up with maintaining physical activity levels. Similarly, another longitudinal study found the same supportive evidence for the mediating role of coping planning and action control between intention and consumption of fruit and vegetable intake (Godinho et al., 2014). Accordingly, Scholz et al. (2008) proposed coping planning as an essential strategy for the maintenance of health behaviors and overcoming barriers by bridging the gap between intentions and actual behavior.

### **Self-Compassion**

Within the last couple of decades, researchers have tested many constructs in relation to self-regulation, some of these coming from eastern schools of thought. Taking from Buddhist teachings (Neff, 2003a), self-compassion became a widely researched construct, defined as:

Being open to and moved by one's own suffering, experiencing feelings of caring and kindness toward oneself, taking an understanding, nonjudgmental attitude toward one's inadequacies and failures, and recognizing that one's own experience is part of the common human experience (Neff, 2003a, p.87).

This construct includes three key components: self-kindness, common humanity, and mindfulness. Self-kindness involves being kind and understanding towards oneself when facing emotional pain or failure, rather than being self-critical; common humanity refers to the ability to see own mistakes and inadequacies as part of a shared human experience, instead of feeling alone with failures and flaws; and lastly, the concept of mindfulness means to be aware of own painful thoughts and experiences and hold them with balance, rather than over-identifying with them. Moreover, Neff proposed self-compassion as a healthier way of relating to oneself, due to self-compassion not being a type of evaluation of the self, but rather having an attitude that embraces and accepts all aspects of the self with an open heart, inadequacies included (Neff, 2003a; Neff & Vonk, 2009).

### ***Previous Research on Self-Compassion***

Indeed, self-compassion has been linked to many markers of mental health, such as less anxiety, self-criticism, depression and rumination (Hall et al., 2013; Leary et al., 2007; Neff et al., 2007a) as well as psychological benefits like positive affect and increased well-being (Neff, 2011; Neff et al., 2007b).

Furthermore, literature on self-compassion in relation to health behavior yielded some promising results. For example, a small-scale meta-analysis found self-compassion being positively associated with engagement in health-promoting behaviors across all data samples (e.g., eating habits, exercise, sleep behaviors and stress management; Sirois et al., 2015). Similarly, in a series of studies, Terry and colleagues (2013) explored the relationship between self-compassion, health behaviors and reactions to illness. Overall, results indicated that self-compassion was associated with higher satisfaction with one's health and a stronger motivation to stay healthy. Similarly, a study looking into women's motives to exercise as well as exercise-

related outcomes, found a positive association between self-compassion and intrinsic motivation and a negative association between external and introjected motivation, social physique anxiety and obligatory exercise behavior (Magnus et al., 2010). Regarding more adaptive eating styles, self-compassion has been linked to intuitive eating in college women (Schoenfeld & Webb 2013). Moreover, a systematic review found supportive evidence for self-compassion acting as a protective factor against poor body image and eating pathology (Braun et al., 2016).

In regard to self-compassion and self-regulation, Terry and Leary (2011) described a possible outline to help understand the ways in which self-compassion may play a role in the self-regulation of health behavior. For example, they proposed that the three components of self-compassion can help facilitate processes needed in self-regulation, through lowering defensiveness, reducing self-blame and reducing negative affect. Moreover, since self-compassionate people seem to manage better negative events in life, they could have higher self-regulatory resources to engage in healthy behaviors.

Further, researchers have proposed that self-compassion may assist individuals with the self-regulation of health behaviors, by emphasizing forgiveness and kindness towards the self, buffering individuals against guilt, shame, and rumination after perceived mistakes in health behaviors (Mantzios & Wilson, 2015). Similarly, Adams and Leary (2007) found that inducing a self-compassionate state in participants reduced distress and overeating after an unhealthy eating episode among highly restrictive eaters.

At the same time, the possible drawbacks and concerns connected to this construct have also been expressed. For example, Leary et al. (2007) raised the question of whether being self-compassionate could also lead to being passive and idle, or if forgiving oneself for mistakes could be followed by a lack of motivation for avoiding future ones. In fact, a study looking into

self-compassion, conscientiousness, and motivation to correct interpersonal mistakes found that in men who were low in conscientiousness, self-compassion was associated with lower motivation to fix mistakes (Baker & McNulty, 2011), suggesting that in some situations, self-compassion could lead to lack of action and less accountability. Although there is research pointing at the fact that self-compassion can help see failure as an opportunity to grow (Leary et al., 2007; Neff et al., 2005), understanding the mechanisms that prevent self-compassion from turning into indifference or complacency need to be further explored.

### ***Self-Compassion and Justification-Based Mechanisms of Self-Regulation Failure***

Several studies have provided empirical evidence that justifications can be used to legitimize the act of surpassing one's long-term goals and rationally gratify immediate needs, such as choosing unhealthy over healthy products, and consumption of more food (De Witt Huberts et al., 2014). Taking the previous sections into consideration, researchers have recently raised the question of whether self-compassion could act as a method to justify and legitimize the act of surpassing one's long-term goals and rationally gratify our immediate needs during certain occasions, leading to self-regulation failure of eating behavior (Mantzios & Egan, 2017). As an illustration, picture a scenario in which an individual who is currently trying to lose weight feels highly stressed. Usually, a piece of cake provides comfort, but now it would go against their eating intentions. However, in an effort to be kind to themselves and destress, they decide to forget about their long-term goal and choose the short-term goal of feeling better and eating cake (Mantzios & Egan, 2017)

As revealed in a qualitative study by Mantzios & Egan (2018), self-kindness can be interpreted in different ways. For example, although some participants referred to exercising or eating a healthy meal as acts of self-kindness, others described watching television, indulging in

their favorite foods and drinking as being kind to themselves. It seems like some behaviors, such as eating high calorie and low nutritional foods, even though unhealthy and damaging to the body, do provide comfort and soothe the mind and can be perceived as acts of self-kindness. This can potentially act as a reasonable justification to surpass one's long-term goals and lead to self-regulation failure.

### **Research Gaps**

Even though self-compassion is a promising construct with a wide range of positive findings in regard to psychological benefits (e.g., Neff, 2011), self-regulation and physiological outcomes may require more consideration. It is still unclear whether self-compassion always leads to healthy food choices, and which specific components may be more helpful in fostering health-related behaviors, since most interventions include other aspects (e.g., mindfulness, yoga; Biber & Ellis 2019; Rahimi-Ardabili et al., 2018), making it difficult to draw definitive conclusions regarding the pure influence of self-compassion on the outcomes. Further, some studies have highlighted that the implications regarding the positive role of self-compassion in the self-regulation of health behaviors are unclear (Mantzios et al., 2018; Rahimi-Ardabili et al., 2018). Moreover, a concept related to self-compassion - self-forgiveness, has been linked to the maintenance of unhealthy behavior (Wohl & Thompson, 2011). Researchers concluded that for chronic unhealthy behaviors, forgiving oneself can undermine self-regulation by reducing the negative affect that comes from a goal transgression. Due to the previously mentioned arguments, exploring the potential role of self-compassion as a justification mechanism and understanding the conditions that can prevent this, such as coping planning, are worth further exploring. To the best of our knowledge, the relationship between self-compassion, coping planning and justification mechanisms has not yet been examined.

## **Aim and Hypotheses**

Using the Justification-based account of self-regulation failure as a theoretical framework, the present study aims to explore the relationship between self-compassion and self-regulation of eating behavior in goal conflicting situations among adults. Additionally, the study aims to investigate the potential moderating role of coping planning in the relationship between self-compassion and self-regulation.

### ***Hypotheses***

To investigate the aims of the study, the following overarching hypotheses were formulated:

**H1a:** Self-compassion is negatively associated with self-regulation of eating behavior.

**H1b:** Coping-planning is positively associated with self-regulation of eating behavior.

**H2:** Self-compassion and coping-planning significantly predict self-regulation of eating behavior.

**H3:** Coping planning moderates the relationship between self-compassion and self-regulation of eating behavior.

## **Method**

### **Participants**

An initial sample of 550 participants completed a survey regarding self-regulation of eating behavior, self-compassion and coping planning (see Appendix). In order to be eligible for participation, participants needed to be between 18 and 65 years old, understand English and have specific food intentions that required self-regulatory efforts at the time of data collection. To control for this, the screening question from the Self-regulation of Eating Behavior Questionnaire (Kliemann et al., 2016) was used. It was decided beforehand that participants who

responded “No” to the question, “Do you intend not to eat too much of these foods”, would be considered as not trying to self-regulate and would be omitted from the final dataset.

The final sample constituted 473 participants. From the final sample, 334 (70.6%) were women, 136 (28.8%) were men, one participant reported ‘other’, and two preferred not to say. The average age of the sample was 33.7 years ( $SD = 11.8$ ), ranging between 18 and 64 (see Table 1). To ensure anonymity, nationality and country of residence were not asked specifically, instead, general parts of the world were used. Since the study was conducted in Sweden, Scandinavia was presented as an individual option to describe the sample more accurately (see Table 2 for summary). The majority of participants were from (72.1%) and currently lived (64.3%) in Europe (Scandinavia excluded; Table 2).

**Table 1**

*Sample Frequencies by Age Group*

Age group <sup>a</sup>	<i>N</i>	<i>% of Total</i>
Early adulthood	222	46.9%
Middle adulthood	197	41.6%
Late adulthood	54	11.4%

*Note.*  $N = 473$ ,  $\% = 100$

<sup>a</sup>Early adulthood<30, Middle adulthood 30-50, Late adulthood>50

**Table 2**



*Sample Frequencies by Nationality and Country of Residence*

<i>Location</i>	<i>Nationality</i>	<i>Country of residence</i>
Scandinavia	7.2%	19.0%
Europe (Scandinavia excluded)	72.1%	64.3%
North America	15.9%	13.1%
Central & South America	4.4%	2.5%
Africa	0%	0.4%
Asia	0.4%	0.6%

### **Design and Procedure**

The present study was based on a cross-sectional design. The study utilized an anonymous self-report questionnaire created using the electronic Lund University's survey system Sunet Survey (sUNET.se). Further, a small pilot study was conducted with three neutral third-party sources to assess the clarity of the scenarios and the questionnaires' final version. Based on the pilot study, completion of the survey was expected to last 15 minutes. The data collection stage of the study was conducted during the COVID-19 pandemic in spring 2020 (four weeks from April to May). In accordance with the COVID-19 regulations in Sweden, a convenience (more precisely, snowball) sampling method was chosen, since it is a cost-effective method that allows recruiting potential participants online. The link for the survey with a short informational text about the purpose of the study, requirements for participation and length of the study was administered through social media sites.

### **Measures**

#### *Demographic Information*

Participants were asked to report their age, gender, nationality and country of residence.

#### *Motivational Dilemmas*

For the purpose of this study, three scenarios that represent a motivational dilemma were created by the researchers. These scenarios were created based on previous literature regarding goal-conflict situations (see *Previous Research on Motivational Dilemmas and Theoretical Models*). The first scenario represented a hypothetical emotionally distressing situation as the source of conflict, the second scenario referred to the social environment as the dilemma, and the third scenario included habitual behavior as conflicting. All scenarios were designed to be short and neutral to help all participants relate. Participants were instructed to read all three scenarios and select the one they could relate the most to.

**Scenario 1.** Alex finds it the most difficult to stick to his/her eating intentions when he/she is feeling emotionally distressed. When he/she is overwhelmed, stressed or sad, he/she finds comfort in food. A motivational dilemma for Alex would be, when feeling sad, having to choose between sticking to his/hers healthy eating goals or indulging with food that provides comfort to him/her.

**Scenario 2.** Charlie has the hardest time sticking to his/her eating intentions during social situations. In these situations, his/her eating intentions are often different from everyone else's. Charlie's motivational dilemma would be sticking to his/her eating intentions or choosing to eat what everyone else is eating to feel part of the group or to simply enjoy whatever everyone is having. For example, Charlie would have a difficult time not eating cake at a birthday party, family reunion or a wedding, although he/she is trying not to eat sweets.

**Scenario 3.** Sasha has the hardest time sticking to his/her eating intentions in situations when he/she is used to eating certain types of food. For example, eating chips or snacks when he/she is working on the computer or watching tv has become a habit for him/her. A motivational dilemma for Sasha would be, while watching tv, sticking to his/her healthy eating

intentions or giving in to his/her habitual process of eating chips which is highly satisfying for him/her.

### ***Relatedness to the Scenario***

To assess the level to which participants related to the chosen scenario, the following question was used: “How much can you personally relate to the scenario you chose?” Responses were recorded on a 10-point slider scale ranging from 1-10.

### ***Self-Regulation of Eating Behavior***

The Self-regulation of Eating Behavior Questionnaire (SREBQ; Kliemann et al., 2016) is a 5-item questionnaire that has shown good construct and discriminant validity (Kliemann et al., 2016). To assess self-regulation of eating behavior in relation to the presence of a goal-conflicting situations, items were modified based on the scenario chosen by the participants in the previous question. A sentence before each item was added, for example, “When I am emotionally distressed, I’m good at resisting tempting foods”, “When I am in a social environment, I’m good at resisting tempting foods” or “When I am in a situation where I habitually eat tempting foods, I’m good at resisting eating them”. The questionnaire also included three screening questions at the beginning (participants were asked to tick the foods they found tempting from a list of 15 food items, asked if they intend to eat less of those foods, and if they intend to have a healthy diet). The Cronbach’s alpha coefficient for the modified scale in this study was lower ( $\alpha = .64$ ) than what has been found in previous studies ( $\alpha = .75$ ; Kliemann et al., 2016).

### ***Self-Compassion***

The Self-Compassion Scale (SCS; Neff, 2003b) was used to assess participants’ level of self-compassion. This 26-item measure is a widely used tool measuring overall self-compassion

and its components via six subscales (“Self-Kindness”, “Self-Judgment”, “Common Humanity”, “Isolation”, “Mindfulness”, and “Overidentification”). Responses were scored on a 5-point Likert-type scale ranging from 1 (*almost never*) to 5 (*almost always*). When self-compassion is referred to in this manuscript, only total scores were used.

A technical error occurred in the survey which resulted in missing values for all participants on one item of the Self-compassion scale (item 6: “When I fail at something important to me I become consumed by feelings of inadequacy”). The item was excluded and the Over-identification subscale was computed by calculating the mean from the remaining three items in the subscale. The overall score on the SCS scale has the same strong internal consistency in previous studies as in this study ( $\alpha = .92$ ; Neff, 2003b).

### ***Coping Planning***

Since the study aims to assess self-regulation of eating behavior in goal conflicting situations (i.e., a barrier to a long-term goal), only the Coping Planning subscale was used from the Action Planning and Coping Planning Scale (Pakpour et al., 2011). The coping planning subscale consists of five items: “I have made a detailed plan regarding: (a) what to do if something interferes with my plans, (b) how to cope with possible setback, (c) what to do in difficult situations in order to act according to my intention, (d) which good action opportunities to take, and (e) when I have to pay extra attention to prevent lapses”. The items were scored on 5-point Likert-type scales ranging from “*totally disagree*” = 1, to “*totally agree*” = 5. The internal consistency ( $\alpha$ ) for this scale was .93 in previous studies, and .91 in this study.

### **Statistical Analysis**

Firstly, the mean scores for each Self-compassion subscale, total Self-compassion, Self-regulation, and Coping planning were reverse coded where applicable and computed. Thereafter, the dataset was analyzed using Jamovi (Version 1.2).

Preliminary data analysis was performed to ensure that the assumptions of linearity, normality and homogeneity of variances were not violated. Pearson correlations were conducted to investigate the relationship between the sociodemographic variables (age, gender) and scenario type, with the variables of interest (self-compassion, self-regulation and coping planning). Furthermore, a hierarchical multiple regression was conducted using the “model builder” function, and moderation effect was tested employing hierarchical regression, as well as the ‘medmod’ module in Jamovi (Version 1.2).

In order to evaluate and interpret the respective correlation coefficients, cut-offs were considered beforehand. Cohen’s (1988) guidelines are the most widely known conventions and provide orientation values for small, medium, and large correlations. According to Cohen (1988), correlation coefficients of .10 are small effects, a correlation of .30 is medium and those of  $r = .50$  are defined as large.

Two missing values (0.4%) were detected, both for item 4 in the Self-Compassion Scale. Missing values were replaced using case mean substitution, rather than using sample mean for that variable (sample mean substitution). Since items in each subscale are assumed to be closely related and indicators of the same concept, missing values were replaced using participants’ data from other items in the isolation subscale (Fox-Wasylyshyn & El-Masri, 2005). Inspection of scatter plots and histograms showed minor deviations from normality. Although the scores of the scales showed some skewness (-.368 for self-compassion, .099 for coping planning and .335 for self-regulation), the levels were below the commonly used cut-point of -1 and +1 (Hair et al.,

1998). Boxplots and studentized residuals were used to check if standard residuals were greater than  $\pm 3$ . Values greater were not influential when comparing the analyses with and without them. Also, values seemed to be random. Therefore, none of the outliers were excluded.

Assumptions about linear regression were validated. Linearity of relationship was checked using partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.95. Multicollinearity was checked by calculating VIF (Variance Inflation Factor) values, and no VIF values greater than 1.05 were found. Further, there were no values for Cook's distance above 1, and the assumption of normality was assessed by Q-Q Plot (Quantile-Quantile). Further, to avoid high multicollinearity when testing the interaction term, the variables were centered (Aiken & West, 1991).

### **Ethical Considerations**

The present study was done in accordance with the Law on Ethics of Research Involving Humans (SFS 2003:460). All data were collected anonymously using a Sunet Survey link and was kept in a password protected computer in a locked safe to which only the researchers had access to. Participants were presented with a consent form before starting the questionnaire. In the consent form, participants were informed about the voluntary nature of their participation in the study and the right to withdraw at any given moment. Additionally, due to potential triggers, participants with current or past eating disorder struggles were advised to refrain from participating in the study. Further, participants were encouraged to seek professional assistance from a health professional in case emotional distress was experienced following participation in the study. Before starting the questionnaire, participants had to indicate they had read and agreed

to the information provided. After completion of the survey, a short debrief with the aims of the study and researchers' contact information was provided.

## Results

### Preliminary Analysis

First, preliminary analysis examining descriptive statistics and correlations between sociodemographic variables and main study outcomes were performed. Table 3 presents the summary. Further, the proportion of motivational dilemmas chosen was roughly equally distributed: 40.2% participants chose the emotionally distressing scenario, 30.9% chose the social environment scenario and 29.0% chose the habitual behavior scenario.

Since self-regulation requires a motivational dilemma, participants were considered not in a goal-conflicting situation if they responded 1 (not related) on the relatedness to scenario question. Therefore, variable relatedness to the scenario was transformed into a dummy variable (1 = not related, 2-10 = related) and was used in the regression analysis to control its effect.

**Table 3**

*Descriptive Statistics and Correlations for Variables of Interest*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Self-compassion	3.21	0.63	/				
2. Self-regulation	2.91	0.41	.30***	/			
3. Coping planning	2.55	0.94	.20***	.23***	/		
4. Age	33.70	11.80	.19***	.04	.03	/	
5. Gender <sup>a</sup>	1.71	0.45	-.13**	-.18***	.05	-.15**	/

<sup>a</sup>1 = male, 2 = female. Participants who responded 'Other' or 'Prefer not to say' were excluded from correlational analysis regarding gender.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

A significant correlation between gender and self-compassion was found ( $r = -.13, p < .01$ ), signifying that males in this sample had higher levels of self-compassion. Furthermore, age displayed a significant positive correlation with self-compassion ( $r = .19, p < .001$ ), meaning that being older is associated with higher self-compassion. However, even though significant, both coefficients are considered low (Cohen, 1988) and neither of the demographic variables are related significantly to self-regulation that is the main outcome variable in the study.

### **Correlational Analysis**

The strength of the association between self-compassion, self-regulation and coping planning were tested by computing bivariate correlational analyses. Using the Justification-based account of self-regulation failure as a theoretical framework, it was hypothesized that self-compassion would show a negative association with self-regulation (H1a). Further, coping planning was hypothesized to display a positive correlation with self-regulation (H1b).

#### ***H1a***

The correlational analysis indicated significant positive association and medium effect size (Cohen, 1988) between self-compassion and self-regulation ( $r = .30, p < .001$ ), which was not in line with H1a. The correlation implies that high self-compassion comes along with high self-regulation.

#### ***H1b***

In line with the second hypothesis, coping planning was found to be significantly correlated to self-regulation ( $r = .23, p < .001$ ). Results imply that when coping planning is higher, self-regulation is higher too.

Furthermore, results indicate that coping-planning and self-compassion are significantly positively associated. With a Pearson coefficient of  $r = .20, p < .001$ , this correlation is small.



Correlational analysis was also performed with self-regulation, coping-planning, and the six self-compassion subscales. The six subscales were analyzed separately to identify if any of them related differently to self-regulation in comparison to the full scale. All subscales showed similar result patterns and small significant coefficients of correlation, however, the total self-compassion score showed higher association with all variables of interest and was used in all analyses.

## **Regression Analysis**

### ***H2***

To test the hypothesis that self-compassion and coping planning predict self-regulation of eating behavior, hierarchical linear multiple regression was conducted in three steps. At Step 1, only relatedness to scenario variable was included as a control variable. At Step 2, self-compassion and coping planning were added to the model. As expected, self-compassion and coping planning, while controlling for relatedness to scenario, significantly predicted self-regulation of eating behavior, *adjusted R* = .15,  $F(3, 469) = 27.70$ ,  $p < .001$  (See Table 4 for a summary of each regression model).

### **Table 4**

#### *Hierarchical Regression Results for Self-Regulation of Eating Behavior*

	Variable	Estimate	SE	95% Confidence Interval		$R^2$	Adjusted $R^2$
				Lower	Upper		
Step 1						.02	.02
	Relatedness to scenario No - Yes	1.31**	0.45	0.44	2.19		
Step 2						.15	.15
	Relatedness to scenario No - Yes	1.60***	0.42	0.78	2.42		
	Self-compassion	0.28***	0.04	0.19	0.37		
	Coping planning	0.19***	0.04	0.10	0.27		
Step 3						.15	.15
	Relatedness to scenario No - Yes	1.60***	0.42	0.78	2.42		
	Self-compassion	0.29***	0.04	0.20	0.37		
	Coping planning	0.18***	0.04	0.09	0.27		
	Self-compassion x coping planning	0.05	0.04	-0.03	0.13		

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## Moderation Analysis

### H3

To test the hypothesis that coping planning moderates the relationship between self-compassion and self-regulation, firstly, the interaction between self-compassion and coping planning on self-regulation failure was tested by adding the interaction term in the third step of the regression analysis. No interaction effect was found (Table 4). Moderation analysis using 'medmod' module in Jamovi corroborated that there was no moderating effect of coping planning and the examination of the interaction plot showed a similar effect of self-compassion with low, average, and high coping planning.

## Discussion

The aim of the study was to explore the relationship between self-compassion, coping planning and self-regulation of eating behavior in goal conflicting situations among adults. Additionally, the study aimed to investigate the potential moderating role of coping planning in the relationship between self-compassion and self-regulation. Four hypotheses were specified to address the aims of this study: Self-compassion is negatively associated with self-regulation of eating behavior (H1a), while coping planning is positively associated with self-regulation of eating behavior (H1b); self-compassion and coping planning significantly predict self-regulation of eating behavior (H2); finally, coping planning moderates the relationship between self-compassion and self-regulation of eating behavior (H3).

The analysis did not provide support for H1a, while it did for hypothesis H1b - both self-compassion and coping planning were significantly positively associated with self-regulation of eating behavior. The results fully supported H2 - self-compassion and coping planning were able to significantly predict self-regulation of eating behavior, while there was no support for the moderating effect of coping planning (H3).

### **H1a: Self-Compassion and Self-Regulation of Eating Behavior**

The results regarding the relationship between self-compassion and self-regulation of eating behavior were not expected from a Justification-based mechanism for self-regulation failure viewpoint. This novel framework (De Witt Huberts et al., 2014) posits that even if a person has an adequate amount of cognitive resources available to act in line with their long-term goals, their rational and deliberate system can be used to create justifications to violate these goals. With this in mind, it was hypothesized that being self-compassionate could be used as a justification for complying with short-term goals. In other words, during goal-conflict situations,

being kind towards oneself could potentially lead to believing one is allowed to or worthy of having a treat which can be used as justification and thus enable goal violation (De Witt Huberts et al., 2014; Taylor et al., 2014).

However, results from this study indicated the opposite — self compassion was positively associated with self-regulation of eating behavior during goal-conflict situations, suggesting that self-compassion may act through different mechanisms in the self-regulatory process, rather than exerting justifications. Several possible explanations for these results are discussed below.

To begin with, some researchers suggested self-compassion to be a mechanism that can enhance health behavior through emotion regulation (Terry & Leary, 2011). As described in the introduction, studies have found that highly self-compassionate individuals seem to have less negative affect and more balanced responses to negative life events (Leary et al., 2007), which opens the possibility for resources that would otherwise be used for emotion regulation, now being available to use for self-regulatory behavior. Another possible explanation stems from the link between self-compassion and higher motivation to stay healthy (Terry et al., 2013). Linking these findings and previous studies on motivation, it is plausible that self-compassion supports engagement in goal-directed behavior through intensified motivation for staying healthy, which would make sticking to one's intentions easier (Pelletier et al., 2004).

Further, methodological aspects of the study should be taken into consideration. As previously mentioned, in order for the justification mechanism to be used, a goal conflicting situation needs to be present (De Witt Huberts et al., 2014). This study used three literature-based hypothetical scenarios as means to present participants with a goal-conflict situation. In order to do this, participants had to read all three scenarios and select the one they related the

most to, however, it is possible that the scenarios presented did not create enough of a motivational dilemma for participants, hence no justification mechanism was needed.

### **H1b: Coping-Planning and Self-Regulation of Eating Behavior**

The findings regarding the relationship between coping-planning and self-regulation of eating behavior are in line with previous studies that depicted coping planning as an important factor for goal-maintenance (Godinho et al., 2014; Scholz et al., 2008; Sniehotta et al., 2005a). This is explained by the assumption that coping planning blocks the automatic unwanted response by creating a mental link between the anticipated obstacles and an alternative plan, which should cause behavior in line with one's intentions more likely (Sniehotta et al., 2005b). Additionally, the Health Action Process Approach (HAPA) postulates that coping planning promotes self-regulation by enhancing maintenance self-efficacy, which is described as the perception that one is capable of overcoming the identified barriers (Schwarzer, 2016).

Although significant, the coefficient of correlation found in this study is considered small (Cohen, 1988). In relation to this, methodological aspects should be taken into consideration. For example, coping planning was assessed using only five items, which could have left several potential influential factors not assessed. For instance, Pakpour et al. (2011) found that the effectiveness of coping plans for physical activity extended only to individuals who reported a strong intention to exercise. Since this study did not assess the strength of the intention, we cannot differentiate participants based on that factor, which could potentially lower the magnitude of this positive relationship. Furthermore, irrespective of intention strength, individuals gain from coping-planning in different ways, depending on the stage of the health-behavior change process they are in (Scholz et al., 2008). Researchers found that only individuals in the maintenance stage actually benefited from it, while individuals who were at the

beginning of this process benefited less from coping planning but more from action planning, since the adoption of complex behaviors comes before maintenance. Taking this into consideration, it may have been that some participants were at the first stage of behavioral change at the time of data collection and coping planning was less important for self-regulation of their eating intentions. Additionally, the quality of participants' coping plans was not assessed in this study. This brings the possibility of participants having coping plans that could have been better, hence, less effective/helpful for self-regulation. Accordingly, coping planning interventions appeared to be efficacious when participants were supported in the process of forming coping plans (Kwasnicka et al., 2013). Considering that this study asked participants to report coping plans in general and not write their own specific plans, it is not clear if the participants' scores actually reflected good coping plans. In fact, without proper instructions, most people seem to create low quality coping plans (De Ridder et al., 2011). As an example, results from one study showed that the quality of coping plans is lower if created while hungry, in comparison to better coping plans created while satiated (De Ridder et al., 2011).

## **H2: Self-Compassion, Coping Planning, and Self-Regulation of Eating Behavior**

Results corroborated the study's second hypothesis — self-compassion and coping planning were able to significantly predict self-regulation of eating behavior. Building on the associations found between the variables when testing the first two hypotheses, the data were additionally analyzed using multiple regression models to further explain the predictive value of self-compassion and coping-planning on self-regulation. Despite there being no variable manipulation that would allow verification of the causality, the effects described may provide an idea about underlying causal assumptions and provide important information worth exploring further.

By explaining 15% of variance in self-regulation of eating behavior, these results emphasize the dynamic nature of self-regulation of eating behavior. As already observed in literature regarding self-regulation of health behaviors (Mann et al., 2013), the present study adds to the view that the psychological mechanisms underlying this process are complex. Further, Sniehotta et al. (2005b) highlighted the importance of experience when predicting behavior change with coping planning. The researchers imply that a person can fail to create efficient coping plans if not aware of one's true risk situations (i.e., habits, temptations, or stressful situations). In other words, awareness is a prerequisite for efficient coping plans, which again shows the interplay of many constructs. It is possible that self-compassion and coping planning depend on constructs such as awareness and mindfulness. This opens the possibility that the construct of self-regulation and its dynamic interplay with the health behavior process is considerably more complex than what it first seems. It is still unclear which constructs are more or less useful for which individuals and dilemmas but results from this study emphasize the importance of self-compassion and coping planning. Combining findings and theoretical frameworks from different domains in psychological research could provide novel insight into how coping planning and self-compassion fit in the process of self-regulation of eating behavior.

Interestingly, food is being studied more and more in relation to the dopaminergic system and how it affects habituation and its resemblance to addiction-like processes (Bassareo & Gambarana, 2019). The mindfulness to meaning theory (MMT; McConell & Froeliger, 2015) is a theoretical framework that proposes a pathway through which mindfulness can be useful in treating substance-abuse disorders. According to this model, two mechanisms of mindfulness are crucial for treating substance-abuse disorders. First are the eliminative mechanisms, such as exposure and decentering from one's thoughts, which prevents thought suppression and allows

for non-elaborative processing and facilitates insight. The second set of mechanisms are defined as generative mechanisms. These include amplification of positive affect/savoring, reorienting to adversity, and positive reappraisal of stress. In other words, the second processes will, over time, promote reframing of the challenging experiences in a way that one can see them as an opportunity for growth. Thereby, both steps are crucial and combining these two sets of mechanisms is assumed to create a natural reward system within the challenging situation and ameliorate adverse reward systems. To draw a line between MMT and results in this study, we propose that coping-planning on its own can be part of the eliminative mechanism, providing exposure and insight about one's barriers to the self-regulation of eating behavior, while self-compassion might act through the generative mechanisms by accepting whatever the situation brings. However, reorienting to adversity and positive reappraisal is crucial too according to this theory but might not necessarily be a part of self-compassion nor coping planning. This construct is more common within mindfulness research and even though the SCS does include a mindfulness subscale, only four items assess it. We believe this could potentially explain the mechanisms through which self-compassion and coping planning are positively correlated as in this study and how their interplay effect self-regulation. Furthermore, previously researched interventions that included self-compassion and eating behavior usually included some kind of mindfulness training in addition to self-compassion, and this approach could provide some insights on why different results were found (Biber & Ellis, 2017; Rahimi-Ardabili et al., 2018).

### **H3: Coping Planning as a Moderator between Self-Compassion and Self-Regulation of Eating Behavior**

Hypothesis 3 was based on the idea that an individual may be unaware that justifications rooted in self-compassion could enable self-regulation failure. It was hypothesized that coping



planning could help identify these justifications as obstacles and thereby improve self-regulation. At the same time, it was expected that when lacking coping plans, self-compassion would harm self-regulatory efforts by being the source of justification for violating long-term goals. Contrary to these ideas, moderation analysis indicated a similar effect of self-compassion on self-regulation of eating behavior regardless of the coping planning level.

The finding that self-compassion and coping planning are also positively associated might provide some explanation. One perspective is that self-compassion acts as a coping planning on its own, considering that nurturing acceptance of all feelings one has can be a coping strategy to avoid becoming overwhelmed by feelings during goal-conflicting situations. Another view is that self-compassion positively influences self-regulation of eating behavior through different mechanisms depending on coping planning degree. For example, in high coping planning cases, the mere act of creating coping plans could make individuals become more aware of difficult situations and their own struggles, which they may be less aware of otherwise. This increased awareness of the barriers could potentially cause even more understanding and compassion toward oneself after noticing some difficult situations and patterns in one's life and making it easier to use those plans. This could also potentially explain the positive relationship between coping-planning and self-compassion. At the same time, when there is no coping planning, self-compassion might act by nurturing feelings of acceptance of one's feelings without the need of making a change in those feelings. For example, in a difficult situation, a person might accept uncomfortable feelings and proceed with intended behavior. In line with this explanation, evidence on acceptance-based skills for self-regulation, among which is the ability to tolerate uncomfortable internal reactions to triggers, found support for the efficacious role acceptance has on weight maintenance and self-regulation (Forman & Butryn, 2015). Moreover,

findings supported this view especially for those most susceptible to eating in response to internal and external cues (Forman & Butryn, 2015), which can be seen as what was described as motivationally conflicting situations in this study.

### **Theoretical and Practical Implications**

Theories on self-compassion could be more inclusive by proposing different routes through which self-compassion might influence self-regulation. Merging conceptualizations from different domains could result in a more comprehensive theory. For example, the mindfulness to meaning theory (McConell & Froeliger, 2015) could include self-compassion as a potential eliminative and/or generative mechanism that helps in addictive behaviors, including dietary struggles. Future theories on self-compassion could additionally provide more guidance for practices if the framework includes different mechanisms depending on the situation, individual differences or other psychological constructs (e.g., coping planning).

Further, the study findings help bring confidence to the benefits associated with self-compassion, coping planning and self-regulation of eating behavior. Hence, behavior change interventions may benefit from including such constructs. However, these results have another important practical implication, which is the complexity of the self-regulatory process. In order to support behavioral change as much as possible, psychologists need to take a holistic approach when designing intervention, making sure to include other strategies that support self-regulation. Further, in relation to the different types of motivational dilemmas used in this study, the data indicated approximately equally distributed (40.2%, 30.9%, 29%) selection of goal-conflicting situations amongst participants. This implies the importance of coping planning interventions, including a wide array of possible goal-conflict scenarios that could hinder the self-regulatory process, as well as making sure to include individual differences.

## Strengths and Limitations

To begin with, the final sample constituted 473 participants, representing a relatively large sample size, which brings confidence to the results found. Moreover, the sample included a wide array of ages and nationalities, which helps bring diversity and provides more accurate assumptions regarding the general population. Further, in an effort to increase the ecological validity of the study, multiple motivational dilemmas were included, items were modified accordingly and the relatedness to scenario variable was controlled for in the regression analysis. This helped bolster the internal validity of self-report responses regarding one's self-regulation of eating behavior during conflicting situations and thus allowed the results to be more generalizable. Nevertheless, it is important to note that the study used convenience sampling. Participants were recruited using social media groups, but also researchers' personal social media accounts to request participation in the study from friends and acquaintances, as well as asking to repost the link further among their friends, which is known to potentially cause a snowball sampling bias effect. Nonetheless, in efforts to counteract this effect, the recruitment post and the link to the study were published in a large variety of groups, not only those with special diets or eating intentions as a main topic.

Further considering the methodological aspect, the study included the long version of the Self-compassion scale consisting of 26 items instead of the short version with 12-items. Although both have shown strong internal consistency in previous studies (Neff, 2003b), the 26-item scale has previously shown to provide a deeper understanding and better differentiation between subscales. Moreover, the original items from the Self-regulation of eating behavior questionnaire (SREBQ) were modified so the items reflected the scenario which participants' chose (see *Method*). Modifying the items in such ways was important since it provided a more

accurate answer regarding self-regulation in conflicting situations, rather than reporting self-regulation of eating behavior in general. As mentioned in previous sections, a motivational dilemma is crucial when assessing self-regulation.

Regarding the design and the analysis chosen for this study, it is important to note that the cross-sectional nature of the study does not allow drawing causal inferences from the results, which can be seen as a limitation. Nonetheless, the study built on the associations found between the variables and further analyzed the data using multiple regression models to further explain the predictive value of self-compassion and coping-planning on self-regulation of eating behavior. As mentioned before, although the study did not include variable manipulation which would allow verification of casualty, the effects found in the regression analysis may still provide supposition about causation worth further exploring. Additional limitations as they pertain to the methods used are worth mentioning. It is possible that the measures used in the study may have contained retrospective bias. Further, even though participants read a self-regulation dilemma and were instructed to answer questions about their self-regulation of eating behavior in that situation, participants were not in a real-life goal-conflicting situation. Moreover, using literature based self-regulation dilemma scenarios instead of asking participants to describe their own most recurrent personal conflicting scenario may have resulted in a less accurate description of a real-life self-regulation dilemma for participants. Additionally, the order in which different constructs were assessed in the study may have altered participants' perception and led them to answer in a socially desirable way. Finally, it is difficult to know with certainty the way a technical error in the survey which resulted in missing values for item six in the Self-compassion scale impacted the results.

### **Future Research**

Although the results from this study are in line with previous literature pointing toward self-compassion as a mechanism that can support self-regulation of health behavior (Terry & Leary, 2011), it is important to deepen the knowledge regarding how this happens and who can benefit from it by further examining potential underlying mechanisms.

Designing randomized control trials that include self-compassion-only interventions and comparing them with other common interventions might help discover the unique self-compassion benefits for self-regulation of eating behavior. This could also reveal which other constructs might be important to include in addition to self-compassion for it to generate efficient self-regulatory behavior. Furthermore, more research is needed to clarify whether or not self-compassion still acts as justification and undermines the self-regulatory process during some circumstances in order to explain the inconclusive results from earlier studies (see *Research Gaps*). It would be worth testing these ideas by using priming or experimental manipulation. Furthermore, assessing the reasons people provide when they decide to violate their long-term goal could be a way of determining any overlap between the reasons and self-compassion as a concept. Additionally, qualitative studies assessing individuals' self-compassionate beliefs and how these are linked to eating behavior could help expand the knowledge about potential individual differences.

Moreover, future studies could benefit from exploring each self-compassion component separately and creating better measures for them. Results from the study showed that, although significant, the coefficient of correlation was lower for two self-compassion components — common humanity and self-kindness, in comparison to the other four. These findings indicate the importance of further exploring distinct elements separately that could lead to self-regulation failure. It is worth investigating whether the positive association between self-compassion and

self-regulation of eating behavior is influenced by another overarching latent construct, which could blur potential negative effects of some specific components.

### **Summary and Conclusion**

To summarize, the study aimed to explore the relationship between self-compassion, coping planning and self-regulation of eating behavior in goal conflicting situations among adults. Using the justification-based mechanisms of self-regulation failure as a theoretical framework, self-compassion was expected to relate with self-regulation failure. It was hypothesized that self-compassion would hinder self-regulatory processes of eating behaviors by acting as a justification to engage in long-term goal transgression behavior. However, the results from this study did not support this view. On the contrary, in line with previous research regarding self-compassion, a positive association between self-compassion and self-regulation of eating behavior was found. Likewise, coping planning was found to be positively associated with self-regulation of eating behaviors, as expected. Further, results indicated both self-compassion and coping planning as significant predictors of self-regulation of eating behavior. Finally, coping planning was tested as a moderator of this relationship, however, no moderation effect was found.

Altogether, in connection to justification-based models, it seems like self-compassion does not hinder self-regulation of eating behavior, implying that self-compassion supports health outcomes through different mechanisms. However, although this study found no negative association between self-compassion and self-regulation failure of eating behavior, it is still important to highlight the complexity behind such constructs and take this complexity into consideration when designing future interventions. Therefore, combining research and generating new theoretical models is needed to dismantle the intricate nature of the self-

compassion construct itself, as well as its role in the process of self-regulation. For now, self-compassion appears to be a valuable enabler of self-regulation of eating behavior and future research will help understand the specific underlying mechanisms involved in this process.

## References

- Adams, C. E., & Leary, M. R. (2007). Promoting self-compassionate attitudes toward eating among restrictive and guilty eaters. *Journal of Social and Clinical Psychology, 26*(10), 1120–1144.
- Afshin, A., Forouzanfar, M. H., Reitsma, M. B., Sur, P., Estep, K., Lee, A., Marczak, L., Mokdad, A. H., Moradi-Lakeh, M., Naghavi, M., Salama, J. S., Vos, T., Abate, K. H., Abbafati, C., Ahmed, M. B., Al-Aly, Z., Alkerwi, A., Al-Raddadi, R., Amare, A. T., ... Ärnlöv, J. 1970. (2017). Health Effects of Overweight and Obesity in 195 Countries over 25 Years. *New England Journal of Medicine, 377*(1), 13–27.  
<https://doi.org/10.1056/NEJMoa1614362>
- Aiken, L., West, S. (1991). *Multiple regression*. Newbury Park, CA: Sage
- Altheimer, G., & Urry, H. L. (2019). Do Emotions Cause Eating? The Role of Previous Experiences and Social Context in Emotional Eating. *Current Directions in Psychological Science, 28*(3), 234–240. <https://doi-org.ludwig.lub.lu.se/10.1177/0963721419837685>
- Baker, L. R., & McNulty, J. K. (2011). Self-compassion and relationship maintenance: The moderating roles of conscientiousness and gender. *Journal of Personality and Social Psychology, 100*(5), 853–873. <https://doi-org.ludwig.lub.lu.se/10.1037/a0021884>
- Bassareo, V., & Gambarana, C. (2019). Editorial: Food and its effect on the brain: From physiological to compulsive consumption. *Frontiers in Psychiatry, 10*. <https://doi-org.ludwig.lub.lu.se/10.3389/fpsyt.2019.00209>



- Baumeister, R. F., & Heatherton, T. F. (1996). Self-Regulation Failure: An Overview. *Psychological Inquiry*, 7(1), 1. [https://doi-org.ludwig.lub.lu.se/10.1207/s15327965pli0701\\_1](https://doi-org.ludwig.lub.lu.se/10.1207/s15327965pli0701_1)
- Baumeister, R. F., Vohs, K. D., Dewall, C. N., & Zhang, L. (2007). How Emotion Shapes Behavior: Feedback, Anticipation, and Reflection, Rather Than Direct Causation. *Personality & Social Psychology Review (Sage Publications Inc.)*, 11(2), 167–203. <https://doi-org.ludwig.lub.lu.se/10.1177/1088868307301033>
- Biber, D. D., & Ellis, R. (2019). The effect of self-compassion on the self-regulation of health behaviors: A systematic review. *Journal of Health Psychology*, 24(14), 2060–2071. <https://doi-org.ludwig.lub.lu.se/10.1177/1359105317713361>
- Braun, T. D., Park, C. L., & Gorin, A. (2016). Self-compassion, body image, and disordered eating: A review of the literature. *Body Image*, 17, 117–131. <https://doi-org.ludwig.lub.lu.se/10.1016/j.bodyim.2016.03.003>
- Cawley, J., & Meyerhoefer, C. (2012). The medical care costs of obesity. An instrumental variables approach. *Journal of Health Economics*, 31(1), 219–230. <https://doi-org.ludwig.lub.lu.se/10.1016/j.jhealeco.2011.10.003>
- Centers for Disease Control and Prevention. (2020). Overweight and obesity. Retrieved July 1, 2020 from <http://www.cdc.gov/obesity/>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Danner, U. N., Aarts, H., & Vries, N. K. (2008). Habit vs. intention in the prediction of future behaviour: The role of frequency, context stability and mental accessibility of past

- behaviour. *British Journal of Social Psychology*, 47(2), 245–265. <https://doi-org.ludwig.lub.lu.se/10.1348/014466607X230876>
- De Ridder, D. T. D., Ouweland, C., Stok, F. M., & Aarts, F. J. (2011). Hot or not: Visceral influences on coping planning for weight loss attempts. *Psychology & Health*, 26(5), 501–516. <https://doi-org.ludwig.lub.lu.se/10.1080/08870440903564332>
- De Witt Huberts, J. C., Evers, C., & De Ridder, D. T. D. (2012). License to sin: Self-licensing as a mechanism underlying hedonic consumption. *European Journal of Social Psychology*, 42(4), 490–496. <https://doi.org/10.1002/ejsp.861>
- De Witt Huberts, J. C., Evers, C., & De Ridder, D. T. D. (2014). “Because I Am Worth It”: A Theoretical Framework and Empirical Review of a Justification-Based Account of Self-Regulation Failure. *Personality & Social Psychology Review (Sage Publications Inc.)*, 18(2), 119–138. <https://doi-org.ludwig.lub.lu.se/10.1177/1088868313507533>
- Egan, H. & Mantzios, M. (2018). A Qualitative Exploration of Self-Kindness and “Treating Oneself” in Contexts of Eating, Weight Regulation and Other Health Behaviors: Implications for Mindfulness-Based Eating Programs. *Frontiers in Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.00880>
- Elliston, K. G., Ferguson, S. G., Schüz, N., & Schüz, B. (2017). Situational cues and momentary food environment predict everyday eating behavior in adults with overweight and obesity. *Health Psychology*, 36(4), 337–345. <https://doi-org.ludwig.lub.lu.se/10.1037/hea0000439>
- Fedoroff, I., Polivy, J., & Peter Herman, C. (2003). The specificity of restrained versus unrestrained eaters’ responses to food cues: general desire to eat, or craving for the cued

- food? *Appetite*, 41(1), 7–13. [https://doi-org.ludwig.lub.lu.se/10.1016/S0195-6663\(03\)00026-6](https://doi-org.ludwig.lub.lu.se/10.1016/S0195-6663(03)00026-6)
- Fishbach, A., & Dhar, R. (2005). Goals as Excuses or Guides: The Liberating Effect of Perceived Goal Progress on Choice. *Journal of Consumer Research*, 32(3), 370–377. <https://doi.org/10.1086/497548>
- Fishbach, A., Friedman, R. S., & Kruglanski, A. W. (2003). Leading us not into temptation: Momentary allurements elicit overriding goal activation. *Journal of Personality and Social Psychology*, 84(2), 296–309. <https://doi-org.ludwig.lub.lu.se/10.1037/0022-3514.84.2.296>
- Forman, E. M., & Butryn, M. L. (2015). A new look at the science of weight control: How acceptance and commitment strategies can address the challenge of self-regulation. *Appetite*, 84, 171–180. <https://doi-org.ludwig.lub.lu.se/10.1016/j.appet.2014.10.004>
- Fox-Wasylyshyn, S. M., & El-Masri, M. M. (2005). Handling missing data in self-report measures. *Research in Nursing & Health*, 28(6), 488–495. <https://doi-org.ludwig.lub.lu.se/10.1002/nur.20100>
- Godinho, C. A., Alvarez, M., Lima, M. L., & Schwarzer, R. (2014). Will is not enough: Coping planning and action control as mediators in the prediction of fruit and vegetable intake. *British Journal of Health Psychology*, 19(4), 856–870. <https://doi-org.ludwig.lub.lu.se/10.1111/bjhp.12084>
- Hagger, M.S. (2009). Theoretical integration in health psychology: Unifying ideas and complementary explanations. *British Journal of Health Psychology*, 14, 189–194. doi: 10.1348/135910708X397034

- Hagger, M.S., Lonsdale, A., Koka, A., Hein, V., Pasi, H., Lintunen, T. et al. (2012). An intervention to reduce alcohol consumption in undergraduate students using implementation intentions and mental simulations: A cross-national study. *International Journal of Behavioral Medicine, 19*, 82–96. doi: 10.1007/s12529-011-9163-8
- Hair, J. F., Jr, Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). New Jersey: Prentice-Hall.
- Hales, C. M. (2020). Prevalence of Obesity and Severe Obesity Among Adults: United States, 2017-2018. *Medical Benefits, 37*(4), 4–5.
- Hall, C. W., Row, K. A., Wuensch, K. L., & Godley, K. R. (2013). The role of self-compassion in physical and psychological well-being. *The Journal of Psychology: Interdisciplinary and Applied, 147*(4), 311–323. <https://doi-org.ludwig.lub.lu.se/10.1080/00223980.2012.693138>
- Hennessy, E. A., Johnson, B. T., Acabchuk, R. L., McCloskey, K., & Stewart-James, J. (2020). Self-regulation mechanisms in health behavior change: A systematic meta-review of meta-analyses, 2006–2017. *Health Psychology Review, 14*(1), 6–42. <https://doi-org.ludwig.lub.lu.se/10.1080/17437199.2019.1679654>
- Herman, C. P., & Polivy, J. (1984). A boundary model for the regulation of eating. In A. J. Stunkard & E. Stellar (Eds.), *Eating and its disorders* (pp. 141–156). New York: Raven
- Herman, C. P., Roth, D. A., & Polivy, J. (2003). Effects of the Presence of Others on Food Intake: A Normative Interpretation. *Psychological Bulletin, 129*(6), 873–886. <https://doi-org.ludwig.lub.lu.se/10.1037/0033-2909.129.6.873>

- Hofmann, W., Friese, M., & Strack, F. (2009). Impulse and Self-Control from a Dual-Systems Perspective. *Perspectives on Psychological Science*, 4(2), 162–176.  
<https://doi.org/10.1111/j.1745-6924.2009.01116.x>
- Jeffery, R. W., Epstein, L. H., Wilson, G. T., Drewnowski, A., Stunkard, A. J., & Wing, R. R. (2000). Long-term maintenance of weight loss: Current status. *Health Psychology*, 19, 5–16.
- Johnson, A. W. (2013). Eating beyond metabolic need: how environmental cues influence feeding behavior. *Trends in Neurosciences*, 36(2), 101–109. <https://doi-org.ludwig.lub.lu.se/10.1016/j.tins.2013.01.002>
- Kelly, T., Yang, W., Chen, C.-S., Reynolds, K., & He, J. (2008). Global burden of obesity in 2005 and projections to 2030. *International Journal of Obesity*, 32(9), 1431–1437.  
<https://doi.org/10.1038/ijo.2008.102>
- Kliemann, N., Beeken, R. J., Wardle, J., & Johnson, F. (2016). Development and validation of the Self-Regulation of Eating Behaviour Questionnaire for adults. *International Journal of Behavioral Nutrition & Physical Activity*, 13, 1–11. <https://doi-org.ludwig.lub.lu.se/10.1186/s12966-016-0414-6>
- Kwasnicka, D., Penseu, J., White, M., & Sniehotta, F. F. (2013). Does planning how to cope with anticipated barriers facilitate health-related behaviour change? A systematic review. *Health Psychology Review*, 7(2), 129–145. <https://doi-org.ludwig.lub.lu.se/10.1080/17437199.2013.766832>
- Leary, M. R., Tate, E. B., Adams, C. E., Batts Allen, A., & Hancock, J. (2007). Self-compassion and reactions to unpleasant self-relevant events: The implications of treating oneself

- kindly. *Journal of Personality and Social Psychology*, 92(5), 887–904. <https://doi-org.ludwig.lub.lu.se/10.1037/0022-3514.92.5.887>
- Magnus, C. M. R., Kowalski, K. C., & McHugh, T.-L. F. (2010). The Role of Self-compassion in Women's Self-determined Motives to Exercise and Exercise-related Outcomes. *Self and Identity*, 9(4), 363–382. <https://doi-org.ludwig.lub.lu.se/10.1080/15298860903135073>
- Mann, T., de Ridder, D., & Fujita, K. (2013). Self-regulation of health behavior: Social psychological approaches to goal setting and goal striving. *Health Psychology*, 32(5), 487–498. <https://doi-org.ludwig.lub.lu.se/10.1037/a0028533>
- Mantzios, M., & Egan, H. (2017). On the Role of Self-compassion and Self-kindness in Weight Regulation and Health Behavior Change. *Frontiers in Psychology*, 8. <https://doi-org.ludwig.lub.lu.se/10.3389/fpsyg.2017.00229>
- Mantzios, M., & Wilson, J. (2015). Exploring Mindfulness and Mindfulness with Self-Compassion-Centered Interventions to Assist Weight Loss: Theoretical Considerations and Preliminary Results of a Randomized Pilot Study. *Mindfulness*, 6(4), 824.
- Mantzios, M., Egan, H., Hussain, M., Keyte, R., & Bahia, H. (2018). Mindfulness, self-compassion, and mindful eating in relation to fat and sugar consumption: an exploratory investigation. *Eating & Weight Disorders*, 23(6), 833–840. <https://doi-org.ludwig.lub.lu.se/10.1007/s40519-018-0548-4>
- Matvanor (2011). Riskmaten Vuxna. Retrieved on 01.07.20. from: <https://www.livsmedelsverket.se/matvanor-halsa--miljo/matvanor---undersokningar/riksmaten-2010-11---vuxna>

- McConnell, P. A., & Froeliger, B. (2015). Mindfulness, Mechanisms and Meaning: Perspectives From the Cognitive Neuroscience of Addiction. *Psychological Inquiry*, 26(4), 349–357. <https://doi-org.ludwig.lub.lu.se/10.1080/1047840X.2015.1076701>
- Meule, A., Reichenberger, J., & Blechert, J. (2018). Smoking, stress eating, and body weight: The moderating role of perceived stress. *Substance Use & Misuse*, 53(13), 2152–2156. <https://doi-org.ludwig.lub.lu.se/10.1080/10826084.2018.1461223>
- Milne, S.E., Orbell, S., & Sheeran, P. (2002). Combining motivational and volitional interventions to promote exercise participation: Protection motivation theory and implementation intentions. *British Journal of Health Psychology*, 7, 163–184.
- Naik, N.Y., & Moore, M. J. (1996). Habit Formation and Intertemporal Substitution in Individual Food Consumption. *The Review of Economics and Statistics*, 78(2), 321. <https://doi-org.ludwig.lub.lu.se/10.2307/2109934>
- Neff, K. (2003a). Self-Compassion: An Alternative Conceptualization of a Healthy Attitude Toward Oneself. *Self & Identity*, 2(2), 85. <https://doi-org.ludwig.lub.lu.se/10.1080/15298860309032>
- Neff, K. D. (2003b). The Development and Validation of a Scale to Measure Self-Compassion. *Self & Identity*, 2(3), 223. <https://doi-org.ludwig.lub.lu.se/10.1080/15298860309027>
- Neff, K. D. (2011). Self-Compassion, Self-Esteem, and Well-Being. *Social & Personality Psychology Compass*, 5(1), 1–12. <https://doi-org.ludwig.lub.lu.se/10.1111/j.1751-9004.2010.00330.x>
- Neff, K. D., & Vonk, R. (2009). Self-Compassion Versus Global Self-Esteem: Two Different Ways of Relating to Oneself. *Journal of Personality*, 77(1), 23–50. <https://doi-org.ludwig.lub.lu.se/10.1111/j.1467-6494.2008.00537.x>

- Neff, K. D., Hsieh, Y.-P., & Dejitterat, K. (2005). Self-compassion, Achievement Goals, and Coping with Academic Failure. *Self & Identity*, 4(3), 263–287. <https://doi-org.ludwig.lub.lu.se/10.1080/13576500444000317>
- Neff, K. D., Kirkpatrick, K. L., & Rude, S. S. (2007a). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality*, 41(1), 139–154. <https://doi-org.ludwig.lub.lu.se/10.1016/j.jrp.2006.03.004>
- Neff, K. D., Rude, S. S., & Kirkpatrick, K. L. (2007b). An examination of self-compassion in relation to positive psychological functioning and personality traits. *Journal of Research in Personality*, 41(4), 908–916. <https://doi-org.ludwig.lub.lu.se/10.1016/j.jrp.2006.08.002>
- O'Connor, D. B., Jones, F., Conner, M., McMillan, B., & Ferguson, E. (2008). Effects of daily hassles and eating style on eating behavior. *Health Psychology*, 27(1, Suppl), S20–S31. <https://doi.org/10.1037/0278-6133.27.1.S20>
- Ohtomo, S. (2013). Effects of habit on intentional and reactive motivations for unhealthy eating. *Appetite*, 68, 69–75. <https://doi-org.ludwig.lub.lu.se/10.1016/j.appet.2013.04.014>
- Pakpour, A. H., Zeidi, I. M., Chatzisarantis, N., Molsted, S., Harrison, A. P., & Plotnikoff, R. C. (2011). Effects of action planning and coping planning within the theory of planned behaviour: A physical activity study of patients undergoing haemodialysis. *Psychology of Sport and Exercise*, 12(6), 609–614. <https://doi-org.ludwig.lub.lu.se/10.1016/j.psychsport.2011.06.008>
- Papies, E. K., & Hamstra, P. (2010). Goal priming and eating behavior: Enhancing self-regulation by environmental cues. *Health Psychology*, 29(4), 384–388. <https://doi-org.ludwig.lub.lu.se/10.1037/a0019877>



- Papies, E., Stroebe, W., & Aarts, H. (2008). Understanding dieting: A social cognitive analysis of hedonic processes in self-regulation. *European Review of Social Psychology, 19*(1), 339–383. <https://doi-org.ludwig.lub.lu.se/10.1080/10463280802563723>
- Pelletier, L. G., Dion, S. C., Slovinec-D'Angelo, M., & Reid, R. (2004). Why Do You Regulate What You Eat? Relationships Between Forms of Regulation, Eating Behaviors, Sustained Dietary Behavior Change, and Psychological Adjustment. *Motivation & Emotion, 28*(3), 245–277. <https://doi-org.ludwig.lub.lu.se/10.1023/B:MOEM.0000040154.40922.14>
- Prinsen, S., de Ridder, D. T. D., & de Vet, E. (2013). Eating by example. Effects of environmental cues on dietary decisions. *Appetite, 70*, 1–5. <https://doi-org.ludwig.lub.lu.se/10.1016/j.appet.2013.05.023>
- Prinsen, S., Evers, C., & Ridder, D. (2016). Oops I Did it Again: Examining Self-Licensing Effects in a Subsequent Self-Regulation Dilemma. *Applied Psychology: Health & Well-Being, 8*(1), 104–126. <https://doi-org.ludwig.lub.lu.se/10.1111/aphw.12064>
- Protogerou, C., McHugh, R. K., & Johnson, B. T. (2020). How best to reduce unhealthy risk-taking behaviours? A meta-review of evidence syntheses of interventions using self-regulation principles. *Health Psychology Review, 14*(1), 86–115. <https://doi-org.ludwig.lub.lu.se/10.1080/17437199.2019.1707104>
- Public Health Agency of Sweden. (2020). Overweight and obesity. Retrieved July 1, 2020 from <https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/living-conditions-and-lifestyle/obesity>
- Rahimi-Ardabili, H., Reynolds, R., Vartanian, L. R., McLeod, L. V. D., & Zvar, N. (2018). A Systematic Review of the Efficacy of Interventions that Aim to Increase Self-

- Compassion on Nutrition Habits, Eating Behaviours, Body Weight and Body Image. *Mindfulness*, 9(2), 388.
- Riet, J. van't, Sijtsema, S. J., Dagevos, H., & De Bruijn, G.-J. (2011). The importance of habits in eating behaviour. An overview and recommendations for future research. *Appetite*, 57(3), 585–596. <https://doi-org.ludwig.lub.lu.se/10.1016/j.appet.2011.07.010>
- Schoenefeld, S. J., & Webb, J. B. (2013). Self-compassion and intuitive eating in college women: Examining the contributions of distress tolerance and body image acceptance and action. *Eating Behaviors*, 14(4), 493–496. <https://doi-org.ludwig.lub.lu.se/10.1016/j.eatbeh.2013.09.001>
- Scholz, U., Schüz, B., Ziegelmann, J. P., Lippke, S., & Schwarzer, R. (2008). Beyond behavioural intentions: Planning mediates between intentions and physical activity. *British Journal of Health Psychology*, 13(3), 479–494. <https://doi-org.ludwig.lub.lu.se/10.1348/135910707X216062>
- Schwarzer, R. (2016). Health action process approach (HAPA) as a theoretical framework to understand behavior change. *Actualidades En Psicología*, 30(121), 119–130. <https://doi-org.ludwig.lub.lu.se/10.15517/ap.v30i121.23458>
- SFS 2003:460. *Law of Ethics of Research Involving Humans*. Stockholm: Utbildningsdepartementet. [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-2003460-om-etikprovning-av-forskning-som\\_sfs-2003-460](https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-2003460-om-etikprovning-av-forskning-som_sfs-2003-460)
- Sirois, F. M., Kitner, R., & Hirsch, J. K. (2015). Self-compassion, affect, and health-promoting behaviors. *Health Psychology*, 34(6), 661–669. <https://doi-org.ludwig.lub.lu.se/10.1037/hea0000158.supp> (Supplemental)

- Sniehotta, F. F., Schwarzer, R., Scholz, U., & Schüz, B. (2005b). Action planning and coping planning for long-term lifestyle change: theory and assessment. *European Journal of Social Psychology, 35*(4), 565–576. <https://doi-org.ludwig.lub.lu.se/10.1002/ejsp.258>
- Sniehotta, F.F., Scholz, U., & Schwarzer, R. (2005a). Bridging the intention-behaviour gap: planning, self-efficacy, and action control in the adoption and maintenance of physical exercise. *Psychology & Health, 20*(2), 143–160. <https://doi-org.ludwig.lub.lu.se/10.1080/08870440512331317670>
- Stroebe, W., Mensink, W., Aarts, H., Schut, H., & Kruglanski, A. W. (2008). Why dieters fail: Testing the goal conflict model of eating. *Journal of Experimental Social Psychology, 44*(1), 26–36. <https://doi-org.ludwig.lub.lu.se/10.1016/j.jesp.2007.01.005>
- Taylor, C., Webb, T. L., & Sheeran, P. (2014). “I deserve a treat!”: Justifications for indulgence undermine the translation of intentions into action. *British Journal of Social Psychology, 53*(3), 501–520. <https://doi-org.ludwig.lub.lu.se/10.1111/bjso.12043>
- Terry, M. L., & Leary, M. R. (2011). Self-compassion, self-regulation, and health. *Self and Identity, 10*(3), 352–362. <https://doi-org.ludwig.lub.lu.se/10.1080/15298868.2011.558404>
- Terry, M. L., Leary, M. R., Mehta, S., & Henderson, K. (2013). Self-compassionate reactions to health threats. *Personality & Social Psychology Bulletin, 39*(7), 911–926. <https://doi-org.ludwig.lub.lu.se/10.1177/0146167213488213>
- van Dam, R. M., Li, T., Spiegelman, D., Franco, O. H., & Hu, F. B. (2008). Combined impact of lifestyle factors on mortality: Prospective cohort study in US women. *BMJ: British Medical Journal, 337*(7672).
- Verhoeven, A. A. C., Adriaanse, M. A., Evers, C., & de Ridder, D. T. D. (2012). The power of habits: Unhealthy snacking behaviour is primarily predicted by habit strength. *British*

*Journal of Health Psychology*, 17(4), 758–770. <https://doi-org.ludwig.lub.lu.se/10.1111/j.2044-8287.2012.02070.x>

Wohl, M. J. A., & Thompson, A. (2011). A dark side to self-forgiveness: Forgiving the self and its association with chronic unhealthy behaviour. *British Journal of Social Psychology*, 50(2), 354–364. <https://doi-org.ludwig.lub.lu.se/10.1111/j.2044-8309.2010.02010.x>

Wood, W., Quinn, J. M., & Kashy, D. A. (2002). Habits in everyday life. Thought, emotion, and action. *Journal of Personality and Social Psychology*, 83, 1281–1297.

## Appendix

### *Online Questionnaire*

#### PURPOSE

You are invited to join a master's thesis research study about eating behaviors. The purpose of this study is to better understand the factors and conditions that facilitate sustained healthy eating behavior.

#### DURATION AND PROCEDURES

In order to participate, you need to be between 18 and 65 years old of age, be fluent in English and currently have at least one type of food which you find tempting and wish to eat less of. You will be requested to answer questions regarding your eating intentions, attitudes towards yourself and strategies in relation to eating behavior. Answering the questionnaire will take you approximately 10 minutes.

#### CONFIDENTIALITY

All answers will be anonymous. To protect participants' data, all information from the study will be kept on a password protected computer and will be kept in a locked safe. All data will be deleted after the final research paper has been written and submitted.

#### YOUR RIGHTS AS A RESEARCH PARTICIPANT

Participation in this study is voluntary. You have the right to leave the study at any time.

#### IMPORTANT

For most people, answering these types of questions won't produce any negative side effects. However, if you have a history of eating disorders or think that answering questions regarding these topics could be triggering in any way, please avoid participating in the study. If you decide to participate, and as a consequence you experience any significant distress please refer to your local health center for guidance on how to contact a health care professional.

#### CONTACTS

If you have any questions, feel free to contact us.

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I have read and agree to the Terms and Conditions

I refuse

I agree

Each section of the questionnaire will have specific instructions. We kindly ask you to carefully read all questions and answers and then respond accordingly. The following questions are about you. The responses are used to see how representative our sample is of the total population.

What is your age?

What is your gender?

Male  
Female  
Other  
Prefer not to say

What is your nationality? (Please select the part of the world where the country is located)

Scandinavia  
Rest of Europe  
North America  
Central & South America  
Africa  
Asia  
Australia & New Zealand

Where do you currently live?

Scandinavia  
Rest of Europe  
North America  
Central & South America  
Africa  
Asia  
Australia & New Zealand

The following questions are regarding your current eating intentions.

Do you find any of these foods tempting (this is that you want to eat more of them than you think you should)? Please tick all those which apply:

Chocolate  
Crisps  
Cakes  
Ice cream  
Bread/toast  
Fizzy drinks  
Biscuits  
Sweets

Popcorn  
 Pastries  
 Pizza  
 Fried foods  
 Chips  
 Other foods  
 I don't find any food tempting

If you have ticked 'other foods' please specify:

Do you intend NOT to eat too much of these foods you find tempting in the previous question?

Yes  
 No

Do you intend to have a healthy diet?

Yes No

The following section is about challenges related to eating behavior.

In life, it is possible to have multiple goals at the same time. As humans, we can find ourselves working towards different goals at the same time, such as eating healthy, trying to get good grades, spending more time reading, etc. Often, goals like these can coexist. However, there are situations in life where a person can have two contradicting desires and needs to decide between two goals. This is called a motivational dilemma.

We will now ask you to read three short examples of such situations that can be seen as a motivational dilemma.

Please read each one and tick the box next to the one that YOU can relate the most to.

Situation 1: Alex finds it the most difficult to stick to his(her) eating intentions when he(he) is feeling emotionally distressed. When he(he) is overwhelmed, stressed or sad, he(he) finds comfort in food. A motivational dilemma for Alex, would be, when feeling sad, having to choose between sticking to his(hers) healthy eating goals or indulging with food that provides comfort to him(her).

Situation 2: Charlie has the hardest time sticking to his(her) eating intentions during social situations. In these situations, his(her) eating intentions are often different from everyone else's. Charlie's motivational dilemma would be sticking to his(her) eating intentions or choosing to eat what everyone else is eating to feel part of the group or to simply enjoy whatever everyone is having. For example, Charlie would have a difficult time not eating cake at a birthday party, family reunion or a wedding, although he(he) is trying not to eat sweets.

Situation 3: Sasha has the hardest time sticking to his(her) eating intentions in situations when he(he) is used to eating certain types of food. For example, eating chips or snacks when he(he)

is working on the computer or watching tv has become a habit for him(her). A motivational dilemma for Sasha would be, while watching tv, sticking to his(her) healthy eating intentions or giving in to his(her) habitual process of eating chips which is highly satisfying for him(her).

On a scale from 1 to 10, how much can you personally relate to the scenario you chose?

Please read the following statements and choose the most appropriate answer for you. For the next few questions, please understand that:- Tempting foods are any food you want to eat more of than you think you should. - Eating intentions refer to the way you are aiming to eat, for example you may intend to avoid tempting foods or eat healthy foods.

I'm emotionally distressed, I give up too easily on my eating intentions.

Never

Rarely

Sometimes

Often

Always

When I'm emotionally distressed, I'm good at resisting tempting foods.

Never

Rarely

Sometimes

Often

Always

If I'm emotionally distressed, I easily get distracted from the way I intend to eat.

Never

Rarely

Sometimes

Often

Always

If I am emotionally distressed and not eating in the way I intended to, I make changes.

Never

Rarely

Sometimes

Often

Always

If I'm emotionally distressed, I find it hard to remember what I have eaten throughout the day

Never

Rarely

Sometimes

Often

Always



When I'm in a social environment, I give up too easily on my eating intentions.

Never

Rarely

Sometimes

Often

Always

When I'm in a social environment, I'm good at resisting tempting foods.

Never

Rarely

Sometimes

Often

Always

If I'm in a social environment, I easily get distracted from the way I intend to eat.

Never

Rarely

Sometimes

Often

Always

If I'm in a social environment and I am not eating in the way I intended to, I make changes.

Never

Rarely

Sometimes

Often

Always

When I'm in a social environment, I find it hard to remember what I have eaten throughout the day.

Never

Rarely

Sometimes

Often

Always

When I am in a situation where I habitually eat tempting foods, I give up too easily on my eating intentions.

Never

Rarely

Sometimes

Often

Always

When I am in a situation where I habitually eat tempting foods, I'm good at resisting eating them.

Never

Rarely  
 Sometimes  
 Often  
 Always

When I am in a situation where I habitually eat tempting foods, I easily get distracted from the way I intend to eat.

Never  
 Rarely  
 Sometimes  
 Often  
 Always

When I am in a situation where I habitually eat tempting foods, and I am not eating in the way I intended to, I make changes.

Never  
 Rarely  
 Sometimes  
 Often  
 Always

When I am in a situation where I habitually eat tempting foods, I find it hard to remember what I have eaten throughout the day.

Never  
 Rarely  
 Sometimes  
 Often  
 Always

The following questions are not related to your eating intentions, but your life behavior in general. Please indicate how often you behave in the stated manner, using the following scale.

I'm disapproving and judgmental about my own flaws and inadequacies.

Almost never  
 Rarely  
 Sometimes  
 Usually  
 Almost always

When I'm feeling down I tend to obsess and fixate on everything that's wrong.

Almost never  
 Rarely  
 Sometimes  
 Usually  
 Almost always

When things are going badly for me, I see the difficulties as part of life that everyone goes through.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

I try to be loving towards myself when I'm feeling emotional pain.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

When I fail at something important to me I become consumed by feelings of inadequacy.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

When I'm down, I remind myself that there are lots of other people in the world feeling like I am.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

When times are really difficult, I tend to be tough on myself.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

Part 2

When something upsets me I try to keep my emotions in balance.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

I'm intolerant and impatient towards those aspects of my personality I don't like.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

When I'm going through a very hard time, I give myself the caring and tenderness I need.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

When I'm feeling down, I tend to feel like most other people are probably happier than I am.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

When something painful happens, I try to take a balanced view of the situation.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

I try to see my failings as part of the human condition.

Almost never  
Rarely

Sometimes  
Usually  
Almost always

When I see aspects of myself that I don't like, I get down on myself.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

Part 3/3

When I fail at something important to me I try to keep things in perspective.

Almost Never  
Rarely  
Sometimes  
Usually  
Almost always

When I'm really struggling, I tend to feel like other people must be having an easier time of it.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

I'm kind to myself when I'm experiencing suffering.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

When something upsets me, I get carried away with my feelings.

Almost never  
Rarely  
Sometimes  
Usually  
Almost always

I can be a bit cold-hearted towards myself when I'm experiencing suffering.

Almost never  
Rarely  
Sometimes  
Usually

Almost always

When I'm feeling down I try to approach my feelings with curiosity and openness.

Almost never

Rarely

Sometimes

Usually

Almost always

I'm tolerant of my own flaws and inadequacies.

Almost never

Rarely

Sometimes

Usually

Almost always

When something painful happens, I tend to blow the incident out of proportion.

Almost never

Rarely

Sometimes

Usually

Almost always

When I fail at something that's important to me, I tend to feel alone in my failure.

Almost never

Rarely

Sometimes

Usually

Almost always

I try to be understanding and patient towards those aspects of my personality I don't like.

Almost never

Rarely

Sometimes

Usually

Almost always

The following questions are about your eating intentions and your current plans associated with those.

I made a detailed plan regarding what to do if something interferes with my eating intentions plans.

Totally disagree

Disagree

Neither agree nor disagree

Agree

Totally agree

I made a detailed plan regarding how to cope with possible setbacks connected to my eating intentions.

Totally disagree

Disagree

Neither agree nor disagree

Agree

Totally agree

I made a detailed plan regarding what to do in difficult situations in order to act according to my eating intentions.

Totally disagree

Disagree

Neither agree nor disagree

Agree

Totally agree

I made a detailed plan regarding which good opportunities for action to take in relation to my eating intentions.

Totally disagree

Disagree

Neither agree nor disagree

Agree

Totally agree

I made a detailed plan regarding when I have to pay extra attention to prevent lapses from my eating intentions.

Totally disagree

Disagree

Neither agree nor disagree

Agree

Totally agree

#### Debrief

Thank you for your valuable participation in the study.

The goal of the study is to better understand how to develop sustainable healthy eating behavior by understanding the relationship between self-compassion, self-regulation and coping planning. We will analyze the ways in which these factors interact and how they better support or undermine healthy eating behavior.

We would like to remind you that all information has been stored anonymously and will be deleted after the final paper is written.

If you have any questions regarding the experiment or wish to know about the results, please contact us by email:

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