

# Induced self-compassion: a way to overcome resistance to health-information after a negative life-event?

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Reducing alcohol consumption among university students by thinking about cancer in a self-compassionate way.

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## Summary

The proposition that induced self-compassion can reduce the experienced negative emotions after a negative event and - by influencing attitude, defensive avoidance, self-efficacy, and intention - can increase behaviour that is congruent with nutritional recommendations, was tested in an experiment. Participants were 121 university students (29% male and 71% female). Negative emotions were aroused by letting participants watch a cancer-related movie. Following the induction of negative emotions, participants in the self-compassion condition received a self-compassion assignment whereas participants in the control group did a journey recall assignment. After completing the assignment, participants were instructed to read a health information leaflet. Results show that people who did a self-compassion exercise had a less positive attitude towards alcohol consumption after the intervention, showed less defensive avoidance reactions, had a higher perceived self-efficacy, and drank less alcohol than participants in the control group. However, the experienced negative emotions were not reduced after the self-compassion exercise and no evidence was found that induced self-compassion led to lower intentions to drink alcohol. Additionally, a hierarchical regression analysis did not confirm the mediating effect of the experienced negative emotions. The results of this study suggest that interventions based on self-compassion may be a useful tool to overcome resistance to health information and increase the adherence to medical or nutritional recommendations.

Keywords: self-compassion; alcohol consumption; attitude; health information; coping

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## 1. Introduction

The diagnosis of cancer is a negative life-event that may cause great distress in patients. Moreover, the diagnosis of cancer may cause a diverse range of negative emotions. These negative emotions can hinder thorough processing of information with regard to nutritional or medical recommendations. In this thesis, self-compassion will be introduced as a way to diminish the experienced negative emotions after a negative life-event (such as the diagnosis of cancer). These reduced negative emotions may consequently strengthen the intention to follow nutritional or medical advice through three pathways. Finally, these intentions can lead to behaviour that is congruent with the recommendations.

The need for knowledge on how to provide cancer patients with nutrition information is pressing as cancer is becoming a very important cause of death worldwide. In 2008 7.6 million people died of cancer (World Health Organization, 2011). In the Netherlands, cancer became the number one cause of death in 2009 (Centraal Bureau voor de Statistiek, 2011). The prognosis for the number of people who survive cancer is growing, which is likely to place a huge burden on the health care system in future decades (Meulenpas & Kiemeneij, 2011). This prognosis is based on a number of trends that are visible in many (Western) countries: the ageing of the population, the changes in lifestyle, the improved treatments, and the ability to diagnose cancer in an early stage (Meulenpas & Kiemeneij, 2011).

Secondly, as the role of nutrition in cancer is receiving a lot of scientific attention (see for example research conducted by the World Cancer Research Fund / American Institute for Cancer Research), the need for strategies to pass on this knowledge to cancer patients is growing. A large part of cancer research is focused on nutrition as a possible risk factor for different types of cancer. It is estimated by the American Institute for Cancer Research that about 30-40% of all cancers can be prevented by appropriate diets, physical activity, and maintenance of an appropriate body weight (Donaldson, 2004). In an expert report published

in 2007 (World Cancer Research Fund / American Institute for Cancer Research), ten dietary guidelines were provided to reduce the chance of cancer, such as reducing the consumption of red meat and alcohol, or increasing the consumption of fruits and vegetables.

Nutrition is not only important as a risk factor for cancer, but an appropriate diet can also be beneficial during the treatment of cancer. Quite some attention has been paid to nutrition support for cancer patients, especially for those patients that are malnourished (see for example: Barrera, 2002). Malnutrition is quite common in cancer patients, with estimates of global malnutrition incidence ranging from 30 – 90 %, depending on the definition of malnutrition (Nitenberg & Raynard, 2000). Malnutrition, and in its ultimate form cachexia, is caused by different factors which can be grouped in three categories: 1. an inadequate food intake; 2. metabolic alterations resulting in a wasting disease; and 3. specific humoral and inflammatory responses (Barrera, 2002; Nitenberg & Raynard, 2000). Malnourished patients have a higher chance of morbidity and mortality during treatment (Barrera, 2002; Huhmann & August, 2009) which could be improved by screening patients on nutrition status after a cancer diagnosis and providing nutrition support when necessary. However, research on the topic is not yet conclusive and the best nutrition plan for patients is highly dependent on cancer type and other context variables (Barrera, 2002; Bloch, 2000; Huhmann & August, 2009; Nitenberg & Raynard, 2000).

Nutrition can also be important after the treatment of cancer. In the expert report published by the American Institute for Cancer Research (2007), cancer patients are advised to follow the recommendations for cancer prevention. The Dutch Cancer Society published a food checklist for cancer patients stressing the importance of a balanced diet and weight control (KWF Kankerbestrijding, 2011). It should, however, be noted that there is no evidence that these recommendations, about food choices and physical activity, affect cancer

recurrence and survival rates (Doyle et al., 2006). Nonetheless, an appropriate body weight and physical activity are considered to promote overall quality of life (Doyle et al., 2006).

These preliminary findings, of the importance of nutrition for cancer patients, gives rise to the idea that providing nutrition information should be an important element in the care given by the medical staff, at every step during and after the treatment. However, patients often experience huge distress and go through a whole palette of negative emotions when they are diagnosed with cancer (Carlson et al., 2004; Zabora, Brintzenhofeszoc, Curbow, Hooker, & Piantadosi, 2001). These emotions may hinder the patient's ability to follow nutritional information, or any other kind of medical recommendation. The concept of self-compassion will be introduced as a way to reduce the experienced negative emotions and to strengthen the intention to follow, and behave according to, nutritional information. The research question that this investigation will focus on is therefore: *How does self-compassion influence the experienced emotions after a negative life-event, and how does that consequently influence attitude, self-efficacy, intention, and behaviour with regard to following nutritional recommendations?*

The results of this research are possibly not only valuable for scientific development (i.e. the impact of induced self-compassion on emotions or intentions), but may also be important for the development of interventions in clinical settings (e.g., in oncology). Moreover, the results may not only be relevant for the provision of nutritional information to cancer patients. Also other situations, where people are confronted with threatening life-events or chronic diseases, can benefit from this research.

The remaining part of this thesis will start with an elaboration on the concept of self-compassion and the theoretical framework that forms the basis of this research (Chapter 2). In this chapter a general introduction is given about self-compassion and research that has been conducted already on this topic. In the third chapter, the research model of this thesis is

introduced, that links the concept of self-compassion to behaviour change (and other relevant concepts). The remaining part of the chapters will describe the experiment that was executed to test the research model.

## 2. Self-compassion

### *2.1 Introduction to self-compassion*

Psychologists have been interested in factors that help people cope with difficult or stressful situations for a very long time. A large part of this research on coping mechanisms has focused on the concept of self-esteem and how increased self-esteem can help people to deal with these negative events (see for example Franck & De Raedt, 2007; Risch et al., 2010; Vickery, Sepehri, Evans, & Lee, 2008). Self-esteem is associated with many psychological benefits, such as the link between self-esteem and adaptive outcomes (see Pyszczynski, Solomon, Greenberg, Arndt, & Schimel, 2004 for a review). However, the pursuit of high self-esteem may sometimes be problematic. In a review, Crocker and Park (2004) argue that the pursuit of self-esteem can, indeed, be costly. According to these authors, the pursuit of self-esteem interferes with relatedness, learning, autonomy, self-regulation, and mental and physical health (Crocker & Park, 2004). For example, people who pursue high self-esteem are less likely to learn from their mistakes, because it would require them to acknowledge their role in a specific failure, which in turn might decrease their self-esteem. Crocker and Park (2004) argue that pursuing self-esteem can be motivating, but that other sources of motivation can provide the same motivation as well, without these costs.

In light of these previous observations (i.e., the possible downsides of high self-esteem), Neff (2003b) introduced the concept of self-compassion. According to Neff (2003b), self-compassion “*involves being touched by and open to one’s own suffering, not avoiding or disconnecting from it, generating the desire to alleviate one’s suffering and to heal oneself with kindness. Self-compassion also involves offering nonjudgmental understanding to one’s*



*pain, inadequacies and failures, so that one's experience is seen as part of the larger human experience* (p. 87)". According to Neff (2003b), self-compassion consists of three components:

1. Self-kindness – treating yourself in the same way as you would treat somebody else. Many people judge themselves much harsher than they would judge somebody else. The opposite concept of self-kindness is therefore *self-criticism*, as treating yourself kindly would mean that you would exercise less self-criticism.
2. Common humanity – treating your negative experiences as something that could happen to anyone. This means that negative experiences shouldn't be seen as separating or isolating events, but rather as something part of a larger human experience. The opposite concept of common humanity is therefore *isolation*.
3. Mindfulness – judging negative thoughts and emotions in a more objective way. This means that negative thoughts and emotions are seen as what they really are, no more than thoughts and emotions. Mindfulness therefore prevents over-identifying with negative experiences (i.e., *over-identification* is the opposite concept of mindfulness).

Even though self-compassion research is rather novel, many interesting effects of self-compassion have already been found. For example Leary et al. (2007) have shown that self-compassionate people respond less negatively to negative events. Self-compassion has also been linked to an improved well-being (Neff, 2011; Neff, Kirkpatrick, & Rude, 2007; Neff, Rude, & Kirkpatrick, 2007). Additionally, the effect of self-compassion on actual behaviour was tested. Magnus, Kowalski and McHugh (2010) found a positive relation between self-compassion and exercise behaviour in women.

## 2.2 *Self-compassion versus self-esteem*

Self-compassion and self-esteem have been found to correlate very strongly in experiments and tests (see for example: Leary et al., 2007; Magnus et al., 2010; Neff, 2003a).

However, the concepts should not be confused or considered complementary. In experiments measuring both self-esteem and self-compassion, it has been shown that self-compassion contributed to the unique variance in predicting emotions (Leary et al., 2007).

So, what is the difference between self-compassion and self-esteem? Self-esteem requires an evaluation of yourself in comparison to others. In order to have a high self-esteem people should evaluate themselves more positively than ‘the other’ (Neff, 2011). This self-enhancing evaluation has been labeled the better-than-average effect or ‘The Lake Wobegone Effect’ (Maxwell & Lopus, 1994)<sup>1</sup>. A high self-esteem, thus, requires boosting yourself with self-enhancing biases, while putting others down. Consequently, people with high self-esteem may dismiss negative feedback or blame others for negative events and, as a result, take less personal responsibility.

On the contrary, self-compassion is mainly directed towards oneself, where feelings of self-kindness and common humanity are important. Following this difference in foundation of self-evaluation, the effects of high self-esteem and high self-compassion on feelings and behaviours are profoundly different. People scoring high on self-compassion but low on self-esteem reacted more moderately to negative feedback than people scoring low on self-compassion and low on self-esteem (Leary et al., 2007). Thus, self-compassion may moderate the negative feelings. People scoring high on self-esteem also experience less negative feelings after negative feedback, but for a different reason. People with high self-esteem, attribute negative feedback to someone else (Leary et al., 2007). Therefore, an important difference between self-compassion and self-esteem is defensiveness. As Leary et al. (2007) point out, when people high in self-esteem encounter negative events they may act defensive and use self-serving biases, which reduces their felt responsibility. The authors conclude:

*“Given that it may be more beneficial to recognize rather than deny one’s shortcomings,*

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<sup>1</sup> Garrison Keillor, an American author and storyteller, was a host of a radio-show called ‘A Prairie Home Companion’. In this show he described the fictional town of Lake Wobegon as a place where ‘all the women are strong, all the men are good-looking, and all the children are above average’.

*while remaining kind and understanding toward oneself, self-compassion may foster accurate perceptions and, thus, more effective behaviour [than self-esteem] (Leary et al., 2007:902)”.*

### *2.3 Induced self-compassion*

Recently, researchers got interested in the possibility of inducing self-compassion in people and the effect it has on psychological and physiological outcomes. The concept of self-compassion, for example, has been adopted in intervention programs such as the Mindfulness Based Stress Reduction program (MBSR). In a meta-analysis of 20 studies (both controlled and observational studies) on the Mindfulness Based Stress Reduction programs, the authors conclude that a MBSR-intervention is useful for a broad range of chronic disorders and problems (Grossman, Niemann, Schmidt, & Walach, 2004). Although the number of studies included in this meta-analysis can be considered limited, the consistent and relatively strong level of effect sizes that were found across very different types of samples, suggest that these programs can be beneficial for patients. One year later, a review of studies conducted on the MSBR-program among cancer patients was published, which suggested that there were positive trends visible in patients who follow these programs (Smith, Richardson, Hoffman, & Pilkington, 2005). However, the number of studies included in this review was rather small and the researchers warn for the methodological limitations with which many studies were confronted (Smith et al., 2005). More recently, a randomized control trail among 84 breast cancer survivors showed that patients who had followed the MBSR-program showed significant improvements in psychological status (such as reduced depression and anxiety) and quality of life (such as better physical functioning) compared with usual care (Lengacher et al., 2009).

The idea that self-compassion can be induced, has also been tested in non-clinical settings. In a study among smokers, self-compassion was induced by offering the participants a training in self-compassionate imagery and self-talk that could be used every time the

participant had an urge to smoke. In this study, induced self-compassion led to reduced daily smoking (Kelly, Zuroff, Foa, & Gilbert, 2010). In a study conducted by Leary et al. (2007) self-compassion was successfully induced by making participants write a paragraph on a recent negative event in a self-compassionate way. The participants in this self-compassion condition experienced significantly less negative emotions than participants in the self-esteem condition and the control writing condition.

Even though the findings of all these studies indicate that self-compassion may have beneficial effects on psychological and physiological well-being, there are still many areas in self-compassion research that deserve more attention. First of all, research on self-compassion has been mostly cross-sectional. Up to our knowledge, there are only three studies in which self-compassion has been induced (apart from the therapeutic interventions from the Mindfulness Based Stress Reduction Program), of which two studies were already discussed. Additionally, research on self-compassion has focused on daily hassles or mildly negative events at the most. How people respond to more severe negative life-events is yet to be researched. And finally, the effect of self-compassion on psychological constructs such as attitude, self-efficacy and behaviour has hardly been researched before and leaves room for further exploration of the possible beneficial effects of self-compassion.

### 3. This research: self-compassion and behaviour change

In this thesis, self-compassion is introduced as a way to reduce the experienced negative emotions after a negative (such as a cancer diagnosis) and, consequently, to strengthen the intention to behave according to medical or nutritional recommendations. The model presented below, links self-compassion to behaviour change through three different pathways (see Figure 1). The model presented here is, in some ways, based on the Theory of Planned Behaviour (Ajzen, 1985). It starts from the assumption that actual behaviour is based on intentions to perform the behaviour. These intentions, in turn, are based on the attitude

towards the behaviour, defensive avoidance reactions towards health information, and the self-efficacy to perform the behaviour (i.e., behavioural control). Defensive avoidance reactions were included in this model to test the effect of self-compassion on resistance to health information after a negative life-event. The subjective norms, which are included in Theory of Planned Behaviour, were left out in this model. Although family and friends may be very important for cancer patients, the primary source for information, about medical and nutritional recommendations, is the medical staff (Rutten, Arora, Bakos, Aziz, & Rowland, 2005; Talosig-Garcia & Davis, 2005). As cancer patients hardly search for additional information about their condition outside the clinical setting (Talosig-Garcia & Davis, 2005), it can be assumed that the subjective norm is not a variable in predicting behaviour. At the top part of the model, finally, it is postulated that the three psychological constructs (i.e., attitude, defensive avoidance, and self-efficacy) are influenced by the experienced negative emotions, which may be affected by the individual's level of self-compassion.

The following graph shows the relations between the different concepts and the hypotheses of the current study (see Figure 1). In the following section the different concepts of the model will be explained further. Each concept will be linked to self-compassion, after which its relevance for cancer patients will be discussed and a hypothesis is formulated.

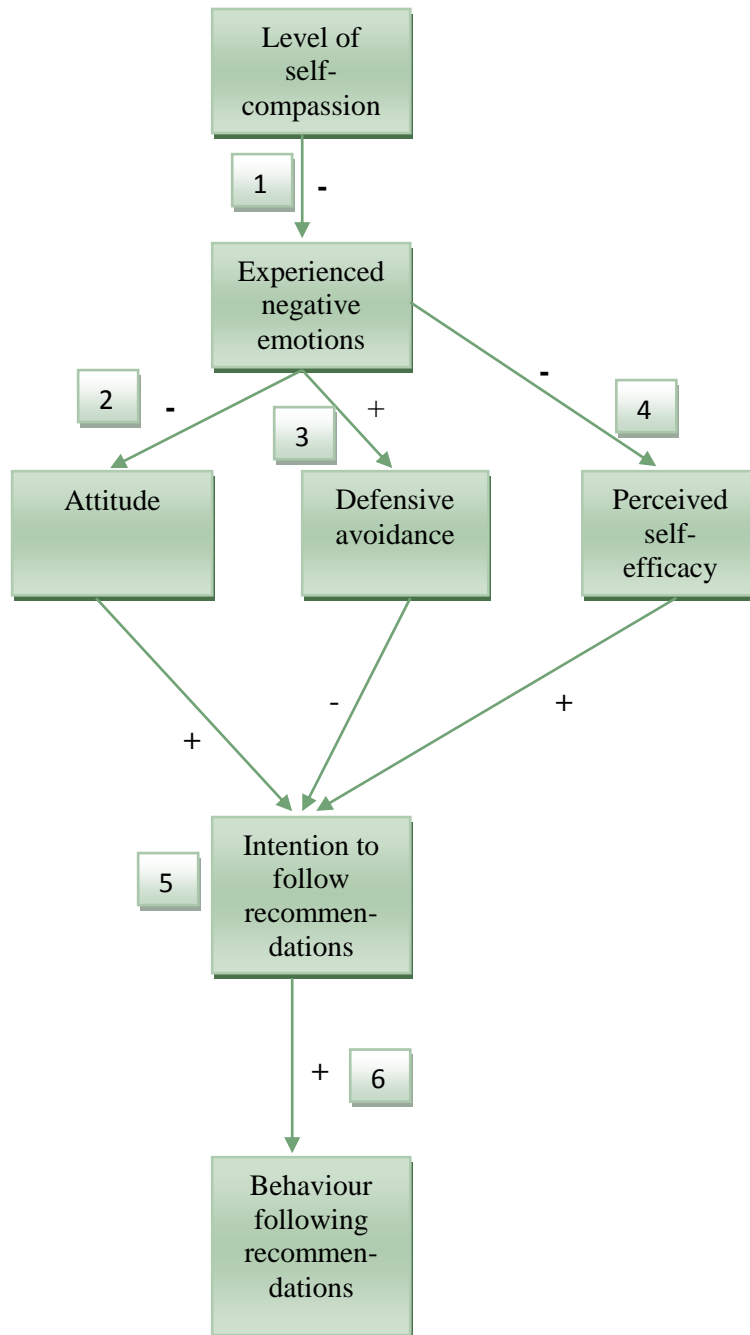


Figure 1. Model of the hypotheses. The numbers in this model correspond with the numbers of the hypotheses. A minus corresponds with a negative relation between the variables; a plus refers to a positive relation between the variables.

### 3.1 Self-compassion and experienced emotions

The starting point of the research model is the influence of self-compassion on the experienced emotions after a negative life-event. This relation, between self-compassion and emotions, has been researched often (Leary et al., 2007; Neff, 2003b; Neff, Kirkpatrick et al.,

2007; Terry & Leary, 2011). In these studies it is shown that self-compassionate people report less depression, anxiety, irritation, loneliness, and anger than less self-compassionate people in all kinds of situations ranging from daily hassles to more severe negative events (Terry & Leary, 2011). Neff et al. (2007) showed that self-compassionate participants also reported higher scores on more positive affective states such as happiness, optimism, and curiosity. Following these findings, a recent publication by Neff showed that self-compassion is positively related to well-being (Neff, 2011).

In line with the previous studies it can be argued that, after the diagnosis of cancer, highly self-compassionate people should experience less negative emotions than people with less self-compassion. The first hypothesis that will be tested in this study is therefore:

*Hypothesis 1: People with higher levels of self-compassion experience less negative emotions than people who have lower levels of self-compassion after a negative event.*

### *3.2 Self-compassion and attitudes*

The question arises how these reduced negative emotions can strengthen the intention to behave according to nutritional recommendations. The first mechanism, that is discussed here, is the influence of emotions on attitudes. Emotions are often used as an information source in the decision-making process (Schwarz, 2000). Negative emotions can then, for example, lead to a negative evaluation of a treatment plan (i.e., a negative attitude). When we base our attitudes on the emotions that we experience, this might bias the decision-making process (Schwarz, 2000).

Cancer patients can experience a lot of negative emotions after the diagnosis (Carlson et al., 2004). Based on the study conducted by Schwarz (Schwarz, 2000), it can be argued that these negative emotions constitute the information source on which patients base their

decisions with regard to treatment plans or nutritional recommendations. Their attitude towards these treatment plans or recommendations are very likely to be negative, as they experience negative emotions. This suggests that cancer patients may benefit from induced self-compassion as the reduced negative emotions may evoke a more positive attitude towards nutritional advice or medical treatment plans. Thus, the experienced negative emotions may be considered a mediating factor in the relation between self-compassion and attitude. The second hypothesis is therefore:

*Hypothesis 2a: People with higher levels of self-compassion have a more positive attitude towards nutritional information than people who have lower levels of self-compassion.*

*Hypothesis 2b: The effect of self-compassion on attitude is mediated by the experienced negative emotions.*

### *3.3 Self-compassion and defensive avoidance*

Another important mechanism that could explain the relation between reduced negative emotions and stronger intentions is called defensive avoidance. Some of the negative emotions patients may experience are directed towards themselves (e.g., shame and blame) (Terry & Leary, 2011). People often show defensive or avoidant reactions in face of these negative feelings about themselves. These avoidant reactions may hinder people to take action. However, self-compassion seems to reduce these feelings of blame and shame, for example in patients with severe acne (Kelly, Zuroff, & Shapira, 2009). A possible explanation for the link between self-compassion and defensive reactions, is that self-compassion requires people to look at their emotions in a mindful (i.e., unemotional and objective) way (Neff, 2003b). Through this mindful perception of the situation, the experienced emotions are



transformed into a more positive feeling state. This positive state may foster a better understanding of the situation and the adoption of actions that may benefit the situation.

After the diagnosis of cancer, self-compassion can reduce the experienced negative emotions which could otherwise lead to defensive or avoidant reactions. That is, cancer patients with self-compassion may experience less shame and blame and could therefore be more willing to discuss their situation and possible steps that need to be taken (i.e., the experienced negative emotions are the mediating factor). This possible mechanism is put forward in the third hypothesis:

*Hypothesis 3a: People with higher levels of self-compassion show less defensive avoidance than people who have lower levels of self-compassion.*

*Hypothesis 3b: The effect of self-compassion on defensive avoidance is mediated by the experienced negative emotions.*

### *3.4 Self-compassion and self-efficacy*

A part of the possible relation between higher self-compassion and stronger intentions has been explained by two mechanisms: a positive attitude and reduced defensive avoidance reactions. Another part of this relation may be explained by the higher perceived self-efficacy of self-compassionate people. Iskender (2009) found a positive relation between Turkish students' level of self-compassion and perceived self-efficacy.

So how could this relation between self-compassion and self-efficacy be explained? In a discussion of Bandura's work, Baldwin et al. (2006) stress that a person's mood or affective state can influence self-efficacy. As self-compassion may reduce the experienced negative emotions (i.e., the affective state) it may influence the self-efficacy beliefs as well. According to these authors, it is not the person's physical or affective arousal that influences their self-

efficacy beliefs, but rather the cognitive interpretation of these states (Baldwin et al., 2006). Additionally, Baldwin et al. (2006) remark that a person can control these states by cognitive training (e.g., by self-compassion training). This suggests that self-compassion can change the interpretation of physical or affective arousal, which may promote perceived self-efficacy.

The question remains how self-compassion can influence the perceived self-efficacy. As has been discussed before, self-compassion is negatively related to self-judgment, isolation, and over-identification (i.e., the opposite concepts of the three components of self-compassion). “*These three dimensions of self-compassion [self-judgment, isolation and over-identification] mean that an individual attributes error and unsuccessful life experiences to his/her own action, identifies intensively with negative feelings when faced with failure, and is swept up in and carried away by the storyline of his/her own pain* (Iskender, 2009:717).” Self-compassionate people may experience less negative emotions after a negative event and, therefore, have more feelings of control which in turn may lead to a higher perceived self-efficacy. This positive relation between self-compassion and control beliefs was found in a study by Iskender (2009). Moreover, in a study conducted by Neff, Hsieh and Dejitterat (2005) it was found that self-compassionate people experience less fear of failure, which is also likely to increase the perceived self-efficacy.

Additionally, it has been shown that self-compassion is related to a greater perceived competence, optimism, curiosity and exploration, and personal initiative, (Neff et al., 2005; Neff, Kirkpatrick et al., 2007). In a study focusing on students, Neff et al. (2005) demonstrated that after failing an exam, self-compassionate people experienced a greater perceived competence to pass other exams than less self-compassionate people. The, on the one hand, reduced negative emotions (of incompetence and shame), and the, on the other hand, increased positive affective state (e.g. curiosity, personal initiative, etc.) can explain

why self-compassion may be positively related to self-efficacy and how this may be moderated by the experienced emotions.

As the relation between nutrition and cancer is complex, patients may feel inadequate to follow the recommendations and to improve their health. Additionally, the diagnosis of cancer may evoke self-judgment, isolation, and over-identification which, in turn, may reduce the strength of the control beliefs. Induced self-compassion, on the other hand, may increase the perceived competence, personal initiative and optimism of cancer patients. Cancer patients may, thus, benefit from self-compassion when it positively influences their perceived self-efficacy. The fourth hypothesis is:

*Hypothesis 4a: People with higher levels of self-compassion have a higher perceived self-efficacy than people who have lower levels of self-compassion.*

*Hypothesis 4b: The effect of self-compassion on perceived self-efficacy is mediated by the experienced negative emotions.*

### *3.5 Self-compassion, intention and behaviour*

All the factors mentioned above can influence the intention to follow nutritional recommendations: attitude, defensive avoidance, and self-efficacy. The effects of these factors on intentions may be mediated by the experienced emotions, as is captured in the hypotheses mentioned above. But there is another way in which emotions may influence intentions and behaviour. Reduced negative emotions can improve the decision-making process as well, whereas strong emotions can hinder thorough processing of information. That is, in case of negative arousal, people often cannot see past the negative event (Terry & Leary, 2011). Petty and Cacioppo (1986) argue that sustainable behaviour change requires a thorough processing of information, which they call central elaboration. This central elaboration can be obstructed

when the experienced emotions are too overwhelming. When self-compassion is induced, negative emotions may fade, and thorough processing of information (or central elaboration) may be possible.

This thorough processing of information is a key process in the Elaboration Likelihood Model (Petty & Cacioppo, 1986). According to this model, central elaboration of arguments or information happens when a number of conditions are met. First of all, a person needs to be interested or involved in a certain topic and needs to be willing to think about the topic. Secondly, the person needs to have enough knowledge to process the information or arguments and the person should not be distracted (Petty & Cacioppo, 1986). Especially the latter condition, distraction, can be obstructing central elaboration when people experience negative emotions. Additionally, these experienced negative emotions can also hinder a person's willingness to think about a certain topic. That is, when people experience dissonance, they are less willing to elaborate thoroughly (because the information about a certain risk is incongruent with their behaviour, see for example Greenwald & Ronis, 1978). All these processes can hinder a thorough processing of information and reduce the intentions to behave according to medical recommendations.

Additionally, self-compassion has not only been linked to stronger intentions, but also to behaviour change. Terry and Leary (2011) postulate that self-compassion influences every step in the process of self-regulation such as the selection of health goals, the engagement in behaviours to reach those goals, the monitoring of goal progress, and the adjustment in behaviour when the goals are not reached. Indeed, self-compassionate people seem more likely to follow up their intentions and actually perform the intended behaviour (Magnus et al., 2010).

Some authors warrant that self-compassion may induce a lack of motivation to behave. Self-compassion and thoughts about self-kindness and common humanity may lead people to

believe they cannot do anything. However, research has shown that in case of negative events, self-compassionate people feel self-responsibility regardless of how negatively they judge an event (Leary et al., 2007). Even though self-compassionate people judge negative events less negative than less self-compassionate people, this does not take away their sense of self-responsibility. Leary et al. (2007) did 5 experiments to test the effect of self-compassion on negative emotions in different situations. The authors conclude that self-compassionate people accept the undesirable aspects of their character and behaviour without obsessing with their shortcomings, or becoming defensive and feeling badly (Leary et al., 2007).

Self-compassion can strengthen the intention to behave according to nutritional advice and may positively influence behaviour change. Cancer patients, who are advised to follow certain treatments or nutrition guidelines, may have higher intentions to adhere (and actually show more adherence) when they have more self-compassion. The fifth and sixth hypotheses are therefore:

*Hypothesis 5a: People with higher levels of self-compassion have higher intentions to behave according to nutritional recommendations than people who have lower levels of self-compassion*

*Hypothesis 5b: The effect of self-compassion on intentions is mediated by attitude, defensive avoidance, and perceived self-efficacy.*

*Hypothesis 6a: People with higher levels of self-compassion behave more according to the recommendations than people who have lower levels of self-compassion.*

*Hypothesis 6b: The effect of self-compassion on behaviour is mediated by the intention to behave according to the recommendations.*

The hypotheses and the research model, which were introduced in this chapter, were tested in an experiment. As we were interested in the mechanisms behind self-compassion, the experiment was conducted among university students (and not cancer patients). It was crucial, therefore, to evoke negative emotions at the start of the experiment, as the negative emotions are the starting point of the research model. In the experiment, these negative emotions were evoked by letting the participants watch a movie about cancer. This movie was selected during a pre-test, which will be discussed first in Chapter 4. The experiment will be described in subsequent chapters.

#### 4. Pre-test

##### 4.1 Participants

Participants were recruited by spreading around flyers on the day of the test. In total 31 participants participated in the test. The number of participants per condition can be found in Table 1. The participants were between 18 and 27 years old, the average age was 20.6 years ( $SD = 2.04$ ). The students participating in this study had various study backgrounds, see Table 2.

Condition/Gender	Male (%)	Female (%)	Total (%)
Technical story	5 (16)	11 (35)	16 (52)
Personal story	5 (16)	10 (32)	15 (48)
Total	10 (32)	21 (68)	31 (100)

Table 1. The number of participants per condition (percentage of total number) (N = 31).

Study background	Frequency
Society and Economics	6
Technology and Nutrition	7
Biology, Plants and Animals	2
Environment and Landscape	16
Total	31

Table 2. The frequencies of the participants' study background (N = 31).

## 4.2 Procedure

Before starting with the test, the participants had to sign an informed consent (see Appendix 1) emphasizing their right to leave the study at any point in time. Participants were randomly assigned to one of the two conditions: the ‘technical story condition’ or the ‘personal story condition’. In the first condition, the participants saw a short movie containing a clinical explanation of cancer<sup>2</sup>. The movie was graphic but did not contain any shocking pictures or personal stories. In the second condition, the participants saw a short movie containing a personal story of a woman that got cancer<sup>3</sup>. The movie did not show any shocking pictures, however, the story could have been seen as quite personal. The participants were instructed to watch the movie with sound and fill in the questionnaire when the movie was finished (see Appendix 2 for the questionnaire and Appendix 3 for translated items and references). When the participants finished the questionnaire, they received a small present for their participation.

## 4.3 Measures

*Emotions.* The participants were asked to score the 20 items of PANAS (Watson, Clark, & Tellegen, 1988). They were asked to what extent they experienced the emotions after watching the movie from 1 [not at all] to 7 [very much] (negative subscale  $\alpha = .90$ ; positive subscale  $\alpha = .84$ ).

*Defensive avoidance.* The participants were asked to score five statements ( $\alpha = .77$ ), from 1 [totally disagree] to 7 [totally agree], for example: “I think the movie is manipulating my feelings” (Jessop, Simmonds, & Sparks, 2009).

*Attitude.* The participants were asked to score the extent to which the item described their opinion from 1 [totally disagree] to 7 [totally agree], e.g., “I think the movie was shocking”.

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<sup>2</sup> <http://www.youtube.com/watch?v=L2uF0qk1jck>

<sup>3</sup> <http://www.youtube.com/watch?v=Zcjyf0ovpuY&feature=related>

#### 4.4 Results pre-test

*Emotions.* Analysis showed that people who watched the movie with the personal story, scored significantly higher on negative emotions ( $Mdn = 3.30$ ) than people who watched the movie with the technical story ( $Mdn = 2.40$ ),  $U = 39.50$ ,  $z = -3.186$ ,  $p = .001$ ,  $r = -.57$ . There was not a significant difference in the experienced positive emotions between the two conditions ( $p = .23$ ). In Table 3, the scores on the positive and negative emotions in both conditions can be found.

	Emotion items	Technical story <i>Mdn</i>	Personal story <i>Mdn</i>	z-score	effect size <i>r</i>	p-value
Negative emotions	1. Scared	2.5	5.0	-2.525	-.45	.014*
	2. Afraid	3.0	4.0	-1.281	-.23	.216
	3. Upset	3.0	5.0	-3.138	-.56	.001***
	4. Distressed	5.0	6.0	-2.196	-.39	.033*
	5. Jittery	1.5	3.0	-1.745†	-.31	.093†
	6. Nervous	2.0	4.0	-3.037	-.55	.002**
	7. Ashamed	1.0	4.0	-2.460	-.44	.021*
	8. Guilty	1.0	4.0	-3.067	-.55	.003**
	9. Irritable	1.5	2.0	-1.632	-.29	.119
	10. Hostile	2.0	1.0	-0.450	-.08	.682
Positive emotions	1. Enthusiastic	3.5	3.0	-0.328	-.06	.770
	2. Interested	6.0	6.0	-0.523	-.09	.654
	3. Determined	3.0	5.0	-3.113	-.56	.001***
	4. Excited	2.0	2.0	-0.102	-.02	.922
	5. Inspired	3.5	5.0	-2.145	-.39	.037*
	6. Alert	3.0	3.0	-1.245	-.22	.232
	7. Active	4.0	3.0	-0.968	-.17	.358
	8. Strong	3.5	4.0	-1.539	-.28	.140
	9. Proud	1.5	3.0	-2.177	-.39	.033*
	10. Attentive	6.0	6.0	-0.043	-.01	.984

Table 3. The median scores on positive and negative emotions in two conditions, the z-score, the effect size, and the p-value (N = 31).

Note. †  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$  (two-tailed test)

The experienced negative emotions were significantly different between men ( $Mdn = 1.85$ ) and women ( $Mdn = 3.20$ ),  $U = 58.50$ ,  $z = -1.968$ ,  $p = .048$ ,  $r = -.35$ . However, there was not a significant gender difference in experienced negative emotions in the personal



story condition ( $p = .679$ ). Additionally, the experienced positive emotions in both conditions were not significantly different between men and women ( $p = .693$ ).

*Defensive avoidance.* People watching the personal story did not score higher on defensive avoidance ( $Mdn = 1.83$ ) than people watching the technical story ( $Mdn = 1.58$ ),  $U = 94.00$ ,  $z = -1.035$ ,  $p = .318$ ,  $r = -.19$ . In Table 4, the scores on the defensive avoidance and message derogation items can be found per condition.

Defensive avoidance and message derogation items	Technical story <i>Mdn</i>	Personal story <i>Mdn</i>	z-score	effect size <i>r</i>	<i>p</i> -value
1. When I saw this movie, my first reaction was that I did not want to see it.	1	3	-2.494	-.45	.021*
2. I think the movie is exaggerated.	1	1	-0.595	-.11	.626
3. I think the movie is manipulating my feelings.	1.5	2	-0.557	-.10	.599
4. I think the movie is straining the truth.	1.5	1	-0.946	-.17	.423
5. I think the movie is too frightening.	1	2	-1.703	-.31	.110
6. I think the story in the movie is overblown.	2	1	-1.420	-.26	.202

Table 4. The median scores on the 6 items of defensive avoidance/message derogation in two conditions, the z-score, the effect size, and the *p*-value ( $N = 31$ ).

Note. \* $p < .05$  (two-tailed test)

The analysis showed that people watching the personal story scored higher on the first item ( $Mdn = 3$ ) than people watching the technical story ( $Mdn = 1$ ). The other items were not scored different across the conditions. There were no significant gender differences for the six items of defensive avoidance and message derogation.

*Attitude towards the movie.* Table 5 shows the attitude scores of the participants in the two conditions. Participants in the personal story condition thought the movie was significantly more moving and touching, and significantly less unreal than participants in the technical story condition. No gender differences in attitudes were found.

I think the movie was...	Technical story <i>Mdn</i>	Personal story <i>Mdn</i>	z-score	effect size <i>r</i>	<i>p</i> -value
1. Realistic	6	6	-0.380	-.18	.740
2. Moving	5	6	-3.045	-.55	.002**
3. Interesting	6	5	-1.619	-.29	.140
4. Unreal	2	1	-2.129	-.38	.049*
5. Shocking	2.5	5	-1.208	-.22	.247
6. Touching	2	6	-3.547	-.64	.000***
7. Fascinating	6	5	-0.977	-.18	.379

Table 5. The median scores on the 7 attitude items in two conditions, the z-score, the effect size, and the *p*-value (N = 31).

Note. \**p* < .05; \*\* *p* < .01; \*\*\* *p* < .001 (two-tailed test)

#### 4.5 Discussion pre-test

The difference in impact of the two conditions on positive emotions was limited, with only ‘determined’, ‘inspired’ and ‘proud’ showing significant differences. Of course, it seems to make sense that a personal story can cause the participants to feel inspired or proud, and be more determined, than a more technical elaboration of the disease. Analysis has shown that the movie containing the personal story had significantly more impact on the experienced negative emotions than the movie with the technical story. The participants in this personal story condition were more scared, upset, distressed, jittery, nervous, ashamed, and felt more guilty. As the movie in the experiment is intended to arouse negative emotions, it can be argued that this personal story should be selected for the experiment. However, the selection should not only be based on impact, also ethical considerations have to be taken into account.

The participants in the personal story condition indicated to agree significantly more with the statement “When I saw this movie, my first reactions was that I did not want to see it”. This could indicate that the personal story was too overwhelming or too frightening. However, this does not seem to be true when considering the fact that the participants in the personal story condition did not think the story was more frightening than the participants in the technical story condition. Secondly, the median score for this defensive avoidance item

was 3, indicating the participants 'disagreed a little' with this statement. Additionally, the scores on the item 'I think this movie was shocking' did not differ significantly between the two conditions. The personal story was, however, considered to be more moving and touching than the technical story.

Very interestingly, the participants did not feel that the personal story was manipulating their feelings, was exaggerated, straining the truth, or being overblown any more than the technical story. Additionally, the participants in the technical story condition thought the movie was significantly more unreal. This is a valuable observation, as it is important that the participants of the experiment do not experience the induction of negative emotions as a manipulation. When the participants would experience the personal story as something exaggerating or manipulative, this could influence the results of the study (e.g., by counterbalancing their answers to the questions for this manipulative feeling).

Another very important observation is the absence of significant gender differences in the personal story condition. As the person speaking in the personal story condition is a woman, it can be argued that women might relate more to this person telling the story and may, therefore, experience more emotions or hold stronger attitudes. The analysis has shown that this does not seem to be the case.

#### *4.6 Conclusion pre-test*

Using the movie containing the personal story in the experiment seems to be the best choice. First of all, the personal story has the largest effect on emotions. Watching a personal story did not only influence the experienced negative emotions, also positive emotions were aroused. Additionally, taking into account ethical considerations, this personal story did not frighten the participants too much. Thirdly, the personal story seems to have the same effects on men and women and was not considered manipulative or unreal.

## 5. Method

### 5.1 Participants

A sample of 121 university students voluntarily completed questionnaire 1 after recruitment on the campus. Participants were excluded from the analysis if they had not done or did not complete the two essay-writing assignments (see paragraph 5.2). After excluding people from the analysis, 104 participants were left (see Figure 2). All 104 participants were invited to fill out the second questionnaire one week after the first questionnaire, of which in total 72 people completed the questionnaire (loss to follow-up: 31%).

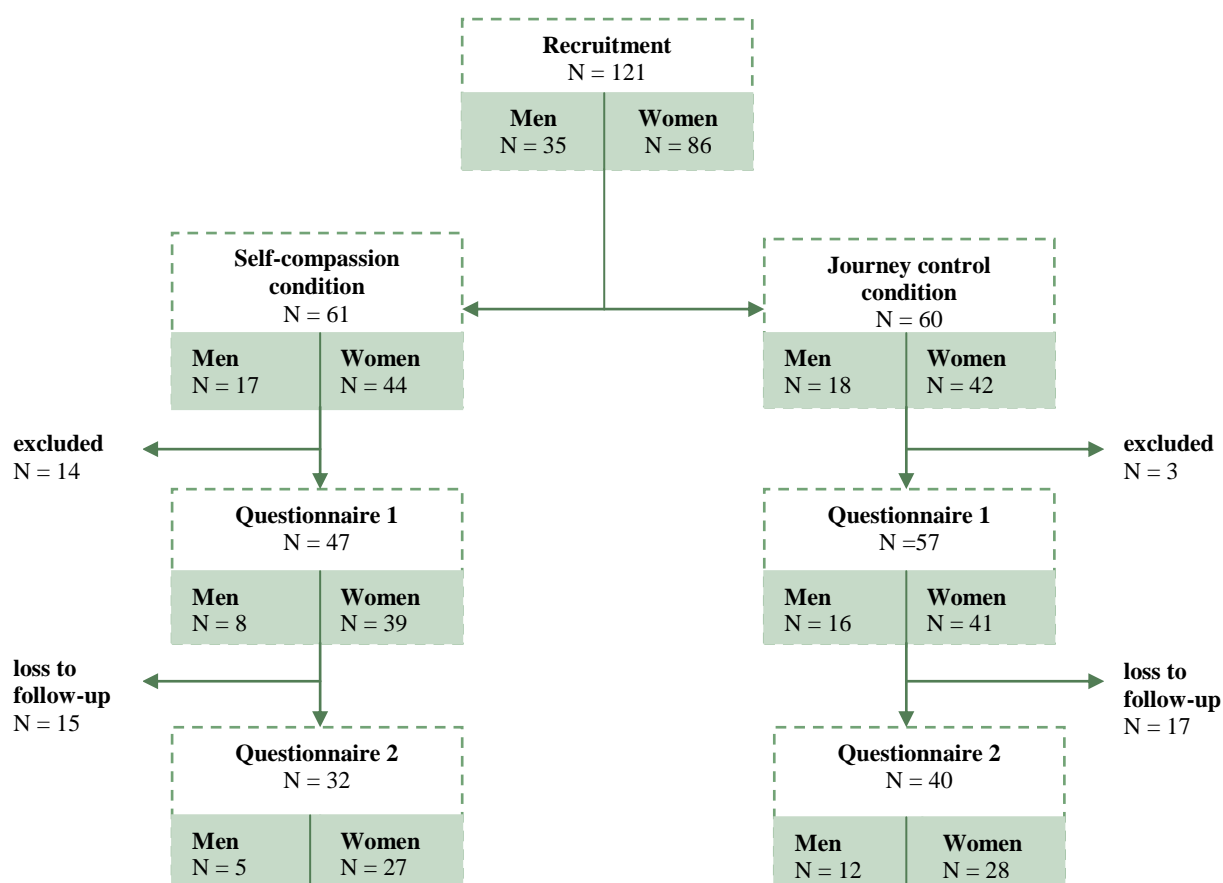


Figure 2. An overview of the number of participants during every step of the experiment.

Note. N = number of people

The study background of the participants varied: 8 participants had a ‘Social and Economy’ background; 34 participants had a ‘Technology and Nutrition’ background; 27 participants had a ‘Biology, Plant and Animal’ background; and 35 people had an

'Environment' background. The average age of the participants was 20.2 years ( $SD = 2.06$ ). Of all the participants, ten abstained from alcohol<sup>4</sup> at baseline and the average alcohol consumption was 9.8 units per week ( $SD = 10.38$ ). The health-information check showed that most people read the leaflet sufficiently (see paragraph 5.2).

## 5.2 Procedure

All the participants were asked to sign an informed consent before starting with the experiment (see Appendix 4 for the informed consent form). In order to induce negative emotions, all the participants watched the movie containing the personal story that was selected during the pre-test. Secondly, all the participants wrote a short essay about the hypothetical situation that they were diagnosed with cancer (see Appendix 5 and 6 for the assignment). The assignment prompted for negative emotions by asking specifically for the participant's emotions in this hypothetical situation. After the negative emotions were aroused, the participants were randomly assigned to one of the two conditions: the induced self-compassion condition or the control writing condition. In the induced self-compassion condition the participants were asked to write a short essay about the hypothetical situation that they were diagnosed with cancer, prompting self-compassionate feelings in line with the study conducted by Leary et al. (2007) (see Appendix 6 for the self-compassion assignment). In the control situation, the participants were instructed to write a few minutes about the shops and buildings they had passed by on their journey from their home to the university building that day (see Appendix 5 for the journey control assignment). The participants were instructed to describe this journey to see how easy people find it to recall familiar items (adapted from Napper, Harris, & Epton, 2009).

Following the manipulation, the participants read an information leaflet about alcohol consumption and cancer. The leaflet contained risk information and recommendations to limit

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<sup>4</sup> These people were not removed from the analysis because they did not influence the results of the experiment.

alcohol consumption (see Appendix 5 and 6 for the information leaflet). The selection of alcohol consumption as the operationalization of the construct ‘behaviour’ was based on the fact that, in order to measure the effect of self-compassion on behaviour, the behaviour should be 1.) a proven risk factor for cancer; 2.) a relevant behaviour for the study population; and 3.) easy to report by the participants (i.e. the participants needed to report their behaviour at one week follow-up).

During the next step, the participants were asked to answer a number of questions containing measures related to negative emotions, attitude, defensive avoidance, self-efficacy, and intention (see Appendix 7 for the questionnaire and Appendix 8 for the translated items and references). One week after the experiment, all the participants received a second questionnaire (by e-mail) containing questions about their attitude, intention, and behaviour of the previous week (see Appendix 9 for the questionnaire and Appendix 10 for the translated items and references).

After completing the experiment (i.e., the first questionnaire), all participants received a small present for their participation. All the participants that completed the second questionnaire as well, had a chance of winning one out of ten gift vouchers that were available for lottery. Furthermore, after the deadline for the second questionnaire, all participants received a debriefing (see Appendix 11 for the debriefing).

The following graph provides an overview of the different measures and steps in the experiment (see Figure 3):

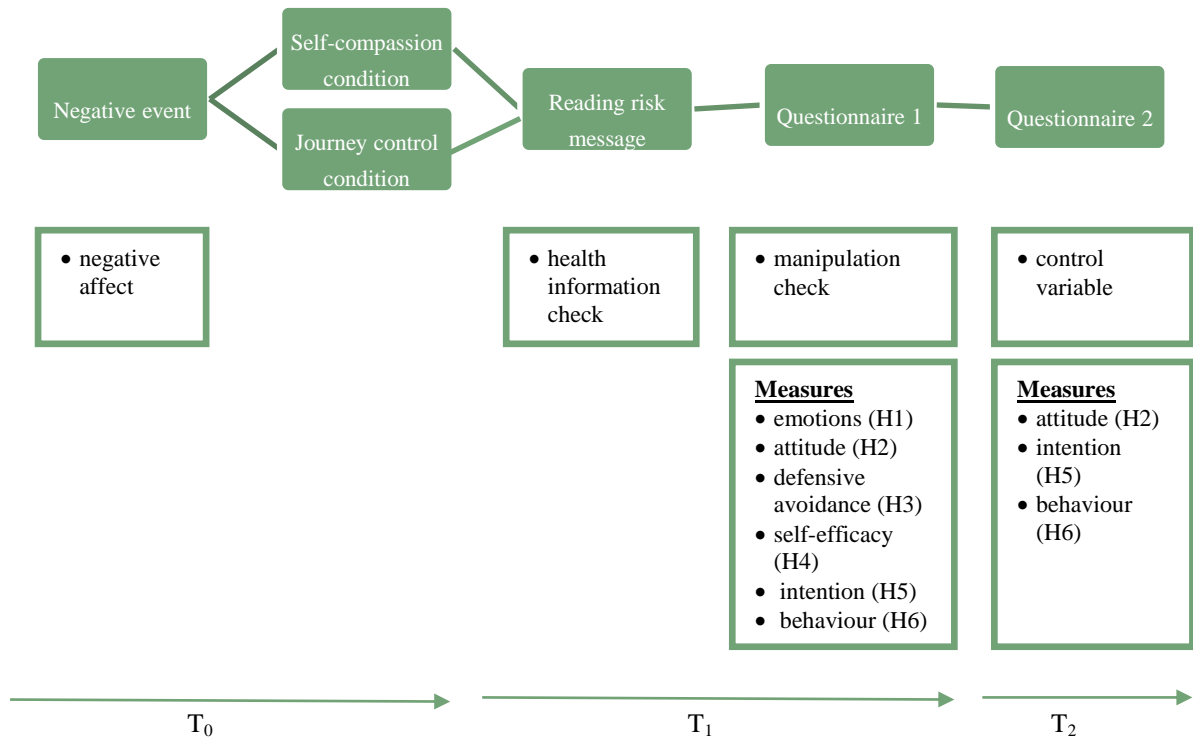


Figure 3. The different steps in the experiment, and the corresponding measures and hypotheses. See paragraph 5.3 for an elaboration of the different measures.

Note. H = corresponding hypothesis; T<sub>0</sub> = the experiment; T<sub>1</sub> = after the manipulation; T<sub>2</sub> = after one week

### 5.3 Measures

#### Questionnaire 1

*Negative affect after a negative event.* The participants were asked for their emotions after watching the movie and the first essay-writing assignment. The participants rated the extent to which they experienced eight specific feelings (e.g., sad) from 1 [not at all] to 7 [very much],  $\alpha = .90$  (adapted from Leary et al., 2007).

*Health-information check.* In order to confirm that the participants had read the information leaflet sufficiently, they received for four true/false statements of which the answers could be found in the leaflet, e.g., “Alcohol consumption can cause cancer”. For each participant the number of wrong answers was reported.

*Negative emotions.* The participants were asked how they felt after reading the information leaflet. This measure consisted of the 20 items of the Positive and Negative

Affect Schedule which could be scored from 1 [not at all] to 7 [very much] (PANAS: Watson et al., 1988). The items of the subscales were averaged to represent the average score on negative or positive emotions (negative subscale,  $\alpha = .88$ ; positive sub-scale,  $\alpha = .81$ ).

*Attitude.* The participants were asked to score the extent to which they agreed to eight statements ( $\alpha = .75$ ) such as “Getting drunk is fun” and “Alcohol brings me in a good mood” on a 7-point Likert-scale (adapted from Caetano & Clark, 1999; Morgenstern, Isensee, Sargent, & Hanewinkel, 2011).

*Defensive avoidance.* In this experiment, defensive avoidance was measured in two ways. First of all, a general reaction towards the health information leaflet was measured by the item “When I read the message about alcohol and cancer my first reaction was that I did not want to think about cancer”, which could be scored from 1 [totally disagree] to 7 [totally agree] (adapted from Jessop et al., 2009). Secondly, participants were asked how they perceived the health information with five statements which could be scored from 1 [totally disagree] to 7 [totally agree] (i.e. message derogation, adapted from Jessop et al., 2009). An average of the six statements was obtained ( $\alpha = .76$ ).

*Self-efficacy.* The participants were asked to rate the extent to which they agreed to six statements ( $\alpha = .84$ ) from 1 [totally disagree] to 7 [totally agree], for example: “If I wanted to, I can limit my alcohol consumption to the recommendations mentioned in the leaflet in the coming week” (adapted from Jessop et al., 2009).

*Intention.* The participants were asked to rate the extent to which they agreed on four statements ( $\alpha = .79$ ) from 1 [totally disagree] to 7 [totally agree], for example: “I intend to limit my alcohol consumption in the coming week” (adapted from Jessop et al., 2009).

*Manipulation check.* The experiment ended with a manipulation check, which consisted of 12 items ( $\alpha = .70$ ) of the self-compassion scale (adapted from Neff, 2003a). The participants



were asked to rate the extent to which the 12 statements applied to them from 1 [not at all] to 7 [very much].

*Behaviour.* The final three items of this questionnaire measured the participant's behaviour with regard to alcohol consumption. This measure contained factual questions asking for their current, average alcohol consumption (e.g., "If you drink alcohol, how many units of alcohol do you drink on average per occasion?")

## Questionnaire 2

*Control measure.* Talking with others about the experiment, the movie or the information in the leaflet may induce self-compassion. This self-compassion may influence the results from the questionnaire. Therefore, the participants were asked to indicate with four items ( $\alpha = .78$ ) to what extent they discussed the movie/information with other people or thought about it themselves, from 1 [not at all] to 7 [very much].

*Attitude.* This measure consisted of the same eight statements as the attitude-measure in questionnaire 1, which could be scored on a 7-point Likert-scale ( $\alpha = .84$ ).

*Intention.* The participants were asked to rate the same four statements as in the first questionnaire from 1 [not at all] to 7 [very much]. Additionally, the participants had to rate the following statement: "In the future, I intend to remind myself of the risks of drinking alcohol" from 1 [not at all] to 7 [very much] ( $\alpha = .85$ ).

*Behaviour.* The participants had to answer six questions measuring their alcohol consumption in the previous week (e.g., "How many units of alcohol did you drink on average per occasion in the previous week?"). Each item was analyzed separately (see the result section of Hypothesis 6a). For the correlation matrix and the hierarchical regression analysis, the aforementioned item was used to represent the variable behaviour.

## 6. Results

### 6.1 Descriptive statistics

Analysis revealed no significant differences between the two conditions in terms of baseline alcohol consumption, number of mistakes in the health-information check, the experienced negative affect after watching the movie, and the control variable after one week ( $ps > .39$ ). The manipulation check showed that the self-compassion scores after the experiment were not significantly different between the participants in the self-compassion condition ( $M = 48.36, SD = 8.98$ ) and the journey control condition ( $M = 48.42, SD = 6.79$ ),  $t(84.173) = 0.037, p = 0.970$ .

The zero-order Pearson correlations between the different variables can be found in Table 6. The experimental condition correlates negatively with attitude  $T_2$  and behaviour  $T_2$ , meaning that being in the self-compassion conditions is associated with a less positive attitude towards alcohol consumption and a reduced average alcohol consumption after one week. The experienced negative emotions showed positive correlations with attitude  $T_1/T_2$  and defensive avoidance  $T_1$ , which are both in the expected direction. Additionally, and in line with the hypothesized model, negative emotions correlated negatively with self-efficacy  $T_1$ . Attitude  $T_1$  and self-efficacy  $T_1$  showed negative, respectively, positive correlations with intention  $T_1$ , as was hypothesized. However, these correlations were not significant any more at one week follow-up (intention  $T_2$ ). The expected negative relation between intention and defensive avoidance was not confirmed. In line with the research model, intentions during the experiment (intention  $T_1$ ) correlated negatively with behaviour after one week follow-up (behaviour  $T_2$ ).

Variable	$\alpha$	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Condition T <sub>0</sub>	-.1	-												
2. Negative affect T <sub>0</sub>	.90	-.09	-											
3. Neg-PANAS T <sub>1</sub>	.88	-.02	.31***	-										
4. Pos-PANAS T <sub>1</sub>	.81	.12	.02	.29***	-									
5. Attitude T <sub>1</sub>	.75	-.10	-.02	.33***	-.06	-								
6. Defensive avoidance T <sub>1</sub>	.76	-.17	.09	.32***	-.01	.22*	-							
7. Self-efficacy T <sub>1</sub>	.84	.13	-.13	-.17†	-.04	-.41***	-.01	-						
8. Intention T <sub>1</sub>	.79	.03	-.01	.11	.18†	-.29***	-.02	.41***	-					
9. SCS T <sub>1</sub>	.70	-.01	-.29***	-.04	-.15	.07	.11	-.01	-.03	-				
10. Control measure T <sub>2</sub>	.78	.02	.16	.42***	.27*	.06	.08	-.07	.20†	.06	-			
11. Attitude T <sub>2</sub>	.84	-.42***	-.02	.24*	-.22†	.88***	.10	-.42***	-.41***	-.04	-			
12. Intention T <sub>2</sub>	.85	.05	-.02	.10	-.01	.05	-.02	-.16	.14	.16	.12	-.02	-	
13. Behaviour T <sub>2</sub>	-.2	-.33***	-.18	-.05	-.29*	.45***	-.06	-.31***	-.35***	.11	-.24*	.43***	.17	-

Table 6. The zero-order Pearson correlations between the variables and the scale reliabilities (N = 104).

Note. Condition = journey control condition (coded 0) or self-compassion condition (coded 1); PANAS = Positive and Negative Affect Schedule; Def. avoidance = defensive avoidance; SCS = Self-Compassion Scale; T<sub>0</sub> = measurement at baseline; T<sub>1</sub> = measurement after the manipulation; T<sub>2</sub> = measurement after one week follow-up.<sup>1</sup> No reliability measure available.<sup>2</sup> The item ‘How many units of alcohol did you drink on average per occasion in the previous week?’ was used for the variable ‘behaviour’, no reliability measure available.

†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$  (two-tailed test)

## 6.2 Hypothesis testing

*Hypothesis 1: People with higher levels of self-compassion experience less negative emotions than people who have lower levels of self-compassion after a negative event.*

The average score on negative emotions did not differ significantly between the participants in the self-compassion condition ( $M = 2.73$ ,  $SD = 1.01$ ) and the participants in the journey control condition ( $M = 2.78$ ,  $SD = 1.03$ ),  $t(101) = 0.239$ , one-sided,  $p = .441$ . Also the average scores on experienced positive emotions did not differ between the two conditions. However, analysis showed that the effect of self-compassion was visible in different emotions for men and for women (see Table 7 and 8 for the significant emotion items). As the differences between the two conditions are very limited and sometimes not in the expected direction, it can be argued that Hypothesis 1 is not confirmed.

Emotion items Male	Journey control condition <i>Mdn</i>	Self-compassion condition <i>Mdn</i>	z-score	<i>p</i> -value
1. Afraid	1.5	3.5	-2.110	.023*
2. Determined	2.5	4.0	-1.463	.072†
3. Irritable	3.0	2.0	-1.823	.041*

Table 7. The median scores, the z-scores, and the *p*-values of the three (marginally) significant emotion items in two conditions for men ( $N = 24$ ).

Note. †  $p < .10$ ; \*  $p < .05$  (one-tailed test)

Emotion items Female	Journey control condition <i>M (SD)</i>	Self-compassion condition <i>M (SD)</i>	<i>t</i> -score	<i>p</i> -value
1. Alert	3.00 (1.27)	3.49 (1.30)	-1.702	.047*
2. Inspired	2.63 (1.20)	3.45 (1.55)	-2.589	.006**
3. Ashamed	2.59 (1.52)	2.10 (1.21)	1.578	.060†
4. Excited	2.51 (1.21)	2.08 (1.06)	1.716	.045*
5. Interested	4.63 (1.16)	5.03 (1.29)	-1.432	.078†
6. Enthusiastic	2.51 (1.21)	3.00 (1.24)	-1.851	.035*

Table 8. The mean scores, the standard deviations, the *t*-scores, and the *p*-values of the six (marginally) significant emotion items across the two conditions for women ( $N = 80$ ).

Note. †  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$  (one-tailed test)

*Hypothesis 2a: People with higher levels of self-compassion have a more positive attitude towards nutritional information than people who have lower levels of self-compassion.*

The average attitude of the participants was lower right after the manipulation in the self-compassion condition ( $M = 3.64$ ,  $SD = 0.78$ ) than in the journal control condition ( $M = 3.81$ ,  $SD = 0.89$ ), but this was not significant,  $t(102) = 1.010$ , one-sided,  $p = .155$ . The effect of self-compassion on attitude was, however, significant for men, with men in the self-compassion condition having a less positive attitude towards alcohol consumption ( $Mdn = 3.31$ ) than men in the journey control condition ( $Mdn = 4.00$ ),  $U = 36.00$ ,  $z = -1.721$ , one-sided,  $p = .047$ ,  $r = -.35$ . This effect was not found for women.

At follow-up, all eight attitude items showed significant differences across the two conditions in line with Hypothesis 2a (see Table 9). The average attitude score was significantly lower in the self-compassion condition ( $M = 3.44$ ,  $SD = 0.78$ ) than in the journey control condition ( $M = 4.14$ ,  $SD = 0.74$ ),  $t(69) = 3.861$ ,  $p < .001$ . No gender differences were found.

	Attitude items	Journey control condition <i>M (SD)</i>	Self-compassion condition <i>M (SD)</i>	<i>t</i> -score	<i>p</i> -value
T <sub>1</sub> - experiment	1. Getting drunk is fun	3.56 (1.86)	3.11 (1.92)	1.222	.113
	2. Having a drink is one of the pleasures in life	4.96 (1.61)	4.89 (1.93)	0.205	.419
	3. Drinking can bring out the worst in people	5.28 (1.47)	5.40 (1.44)	-0.430	.334
	4. Alcohol makes me relaxed	4.65 (1.48)	4.70 (1.14)	-0.201	.421
	5. Alcohol makes me more outgoing	4.96 (1.40)	4.89 (1.24)	0.272	.393
	6. Alcohol brings me in a good mood	4.63 (1.32)	4.30 (1.28)	1.300	.098†
	7. Alcohol is something positive	3.47 (1.23)	3.17 (1.26)	1.242	.109
	8. Consuming alcohol has its downsides as well	6.47 (0.54)	6.51 (0.55)	-0.346	.365
T <sub>2</sub> - post-test	1. Getting drunk is fun	4.05 (1.74)	2.91 (1.63)	2.849	.003**
	2. Having a drink is one of the pleasures in life	5.45 (1.55)	4.63 (1.85)	2.061	.022*
	3. Drinking can bring out the worst in people	5.35 (0.89)	5.97 (0.86)	-2.968	.002**
	4. Alcohol makes me relaxed	5.03 (1.00)	4.56 (1.22)	1.771	.041*
	5. Alcohol makes me more outgoing	5.21 (0.95)	4.56 (1.16)	2.563	.007**
	6. Alcohol brings me in a good mood	4.90 (0.84)	4.38 (1.26)	2.019	.025*
	7. Alcohol is something positive	4.13 (0.97)	3.06 (1.37)	3.718	.000***
	8. Consuming alcohol has its downsides as well	6.33 (0.62)	6.59 (0.56)	-1.916	.030*

Table 9. The mean scores, the standard deviations, the *t*-scores, and the *p*-values of the attitude items during the experiment and the post-test, respectively (N = 104 during experiment; N = 71 during post-test).

Note. † *p* < .10; \* *p* < .05; \*\* *p* < .01; \*\*\* *p* < .001 (one-tailed test)

*Hypothesis 3a: People with higher levels of self-compassion show less defensive avoidance than people who have lower levels of self-compassion.*

As expected, and in line with Hypothesis 3a, the average score on defensive avoidance was significantly lower in the self-compassion condition ( $M = 3.08$ ,  $SD = 0.98$ ) than in the journey control condition ( $M = 3.42$ ,  $SD = 1.03$ ),  $t(102) = 1.709$ , one-sided,  $p = .046$ . See Table 10 for the scores on the six defensive avoidance items.

Defensive avoidance items	Journey control condition <i>M (SD)</i>	Self-compassion condition <i>M (SD)</i>	<i>t</i> -score	<i>p</i> -value
1. When I saw this movie, my first reaction was that I did not want to see it.	3.09 (1.65)	3.02 (1.64)	0.205	.419
2. I think the information about the risk of alcohol on cancer is exaggerated	3.61 (1.59)	3.23 (1.59)	1.213	.114
3. I think the information about the risk of alcohol on cancer is manipulating my feelings	3.89 (1.46)	3.32 (1.46)	2.000	.024*
4 I think the information about the risk of alcohol on cancer is straining the truth	3.04 (1.27)	2.91 (1.25)	0.485	.315
5. I think the information about the risk of alcohol on cancer is too frightening	3.09 (1.66)	2.66 (1.36)	1.447	.076†
6. I think the information about the risk of alcohol on cancer is overblown	3.81 (1.52)	3.34 (1.43)	1.600	.057†

Table 10. The mean scores, the standard deviations, the *t*-scores, and the *p*-values of the defensive avoidance items across the two conditions (N = 104).

Note. †  $p < .10$ ; \*  $p < .05$  (one-tailed test)

*Hypothesis 4a: People with higher levels of self-compassion have a higher perceived self-efficacy than people who have lower levels of self-compassion.*

In line with Hypothesis 4a, the average self-efficacy score was lower in the journey control condition ( $M = 5.11$ ,  $SD = 1.38$ ) than in the self-compassion condition ( $M = 5.46$ ,  $SD = 1.33$ ), but this was only marginally significant  $t(102) = -1.369$ , one-sided,  $p = .087$ . The differences in scores on the self-efficacy items across the two conditions can be found in Table 11, with item two and six showing significant differences in the expected direction.

The influence of self-compassion on self-efficacy scores was especially clear among women. Women in the self-compassion condition scored significantly higher on most of the defensive avoidance items than women in the journey control condition, and also the average defensive avoidance scores for women were higher in the self-compassion condition ( $M = 5.68$ ,  $SD = 1.27$ ) than in the journey control condition ( $M = 5.09$ ,  $SD = 1.42$ ),  $t(78) = -1.941$ , one-sided,  $p = .028$ .

Self-efficacy items	Journey control condition <i>M (SD)</i>	Self-compassion condition <i>M (SD)</i>	<i>t</i> -score	<i>p</i> -value
1. If I wanted to, I can limit my alcohol consumption to the recommendations mentioned in the leaflet in the coming week	5.98 (1.37)	5.87 (1.81)	0.353	.363
2. There are no obstacles that I can think of that may prevent me from limiting my alcohol consumption in the coming week	4.58 (2.18)	5.38 (1.97)	-1.973	.026*
3. It will be easy to limit my alcohol consumption in the coming week	5.09 (1.88)	5.45 (1.91)	-0.962	.169
4. If I wanted to, I can limit my alcohol consumption to the recommendations mentioned in the leaflet in the future	5.47 (1.54)	5.68 (1.59)	-0.674	.251
5. There are no obstacles that I can think of that may prevent me from limiting my alcohol consumption in the future	4.53 (2.03)	4.85 (2.07)	-0.804	.212
6. It will be easy to limit my alcohol consumption in the future	5.00 (1.72)	5.62 (1.57)	-1.893	.031*

Table 11. The mean scores, the standard deviations, the *t*-scores, and the *p*-values of the defensive avoidance items across the two conditions (N = 104).

Note. \*  $p < .05$  (one-tailed test)

*Hypothesis 5a: People with higher levels of self-compassion have higher intentions to behave according to nutritional recommendations than people who have lower levels of self-compassion.*

Hypothesis 5a could not be confirmed as the scores on the four intention items and the average score on intention did not differ significantly across the two conditions during the experiment ( $ps > .319$ ). At follow up, the participants in the self-compassion condition scored higher on the intention items than the participants in the journey control condition, but again none of the differences were significant ( $ps > .191$ ).

*Hypothesis 6a: People with higher levels of self-compassion behave more according to recommendations than people who have lower levels of self-compassion.*



As expected, participants in the self-compassion condition ( $M = 3.22$ ,  $SD = 1.85$ ) scored significantly higher on the item “In the previous week, I limited my alcohol consumption to the recommendations presented in the leaflet” than the participants in the journey control condition ( $M = 2.42$ ,  $SD = 1.68$ ),  $t(70) = -1.909$ , one-sided,  $p = .03$ . Additionally, the participants in the self-compassion indicated more often that they had followed the recommendations mentioned in the leaflet during any occasion in the previous week, than the participants in the journey control condition,  $\chi^2(1, N = 72) = 10.539$ , one-sided,  $p < .001$ .

The participants in the self-compassion condition more often reported they did not drink alcohol in the previous week than the participants in the journey control condition,  $\chi^2(1, N = 72) = 4.80$ , one-sided,  $p = .014$ . Also their self-reported average alcohol consumption per occasion was significantly lower ( $M = 1.78$ ,  $SD = 2.01$ ) than of the participants in the journey control condition ( $M = 3.60$ ,  $SD = 3.08$ ),  $t(67.539) = 3.017$ , one-sided,  $p = .003$ , which is in line with Hypothesis 6a. Although men drank significantly more than women in the week between the experiment and the post-test, the effect of self-compassion on the average alcohol consumption was significant for both men and women separately, see Table 12.

Alcohol consumption	Journey control condition <i>Mdn</i>	Self-compassion condition <i>Mdn</i>	z-score	p-value
Male	4.50	1.00	-1.960*	.024*
Female	2.75	1.00	-1.671*	.048*

Table 12. The median alcohol consumption per occasion across gender and condition, the z-score, and the p-value ( $N = 72$ ). Note. \*  $p < .05$  (one-tailed test)

### 6.3 Testing the model

Four hierarchical (blocked) linear regressions were conducted to determine which variables predicted alcohol consumption. The selection of the variables per block was based

on the theoretical model. By adding each step of the model separately into the hierarchical regression analysis, the predictive power of each block could be determined, taking into account earlier steps in the model.

*Hypothesis 2b: The effect of self-compassion on attitude is mediated by the experienced negative emotions.*

*Hypothesis 3b: The effect of self-compassion on defensive avoidance is mediated by the experienced negative emotions.*

*Hypothesis 4b: The effect of self-compassion on perceived self-efficacy is mediated by the experienced negative emotions.*

In the first step of the regression analysis, self-compassion was a significant factor in predicting alcohol consumption (see Table 13). Adding the experienced negative emotions in the second step did not change the significant predictive power of self-compassion. Additionally, the experienced negative emotions were not a predictive factor of alcohol consumption, meaning that no support was found for the mediating role of the experienced negative emotions. Therefore, Hypothesis 2b, 3b, and 4b could not be confirmed.

*Hypothesis 5b: The effect of self-compassion on intentions is mediated by attitude, defensive avoidance, and perceived self-efficacy.*

In the third step, attitude was found to be a significant predictor of alcohol consumption. The predictive power of self-compassion on alcohol consumption dropped, when attitude was added to the model. This means that mediating effect of attitude, postulated in Hypothesis 5b,

could be confirmed. No evidence was found for the mediating effect of defensive avoidance and self-efficacy.

*Hypothesis 6b: The effect of self-compassion on behaviour is mediated by the intention to behave according to the recommendations.*

Adding intentions in the fourth step did not improve the explained variance of the model, which means that the third step is the best model to predict alcohol consumption. The mediating effect of intentions on alcohol consumption, as has been put forward in Hypothesis 6b, could not be confirmed as intentions were not a significant predictor of alcohol consumption.

Step and Variables	1	2	3	4
1. Self-compassion	-.34**	-.35**	-.20	-.21†
2. Negative emotions		-.08	-.20	-.16
3. Attitude			.41**	.37**
Defensive avoidance			-.06	-.07
Self-efficacy			-.10	-.05
4. Intention				-.11
R <sup>2</sup>	.12	.12	.29	.29
Δ R <sup>2</sup>	.12**	.01	.16**	.01
F-value	9.194**	4.771*	5.211***	4.445**

Table 13. The standardized regression coefficients for the different regression steps predicting the average alcohol consumption per occasion (N = 71).

Note. †  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$  (two-tailed test)

## 7. Discussion

### 7.1 General discussion

This study aimed to investigate the effect of self-compassion on health-related behaviour after a negative event, and the possible mechanisms to explain this relation. The results of this experiment show that participants in the self-compassion condition had a less positive attitude

towards alcohol consumption, showed less defensive avoidance reactions towards health information, had a higher perceived self-efficacy, and drank less alcohol after one week than participants in the journey control condition. This suggests that the induction of self-compassion was successful in influencing the way people deal with health information after being exposed to a negative event. The expected influence of self-compassion on the experienced negative emotions was not confirmed in this experiment and, additionally, no support was found for the expected relation between self-compassion and intention. Also the mediating role of the experienced negative emotions in the research model could not be confirmed in the regression analysis. Only attitude was found to be a significant predictor of alcohol consumption, when all factors were added to the model.

### *7.2 Practical and theoretical implications*

The first hypothesis, which postulated that the experienced negative emotions were negatively correlated with self-compassion, was not confirmed. In earlier studies it has been consistently shown that self-compassion is negatively correlated with negative emotions (see for example: Leary et al., 2007; Neff, 2011; Neff, Kirkpatrick et al., 2007). Nonetheless, most of these studies have been cross-sectional, investigating whether people with higher self-compassion scores experience less negative emotions than less self-compassionate people. The question whether induced self-compassion, after the negative event has taken place, can contribute in decreasing negative emotions is still left unanswered.

Analyzing the results of the experiment did confirm a large part of the hypotheses. It was postulated that self-compassionate people experience less negative emotions and, through a more positive evaluation of the nutritional recommendations, would show a less positive attitude towards alcohol consumption. This hypothesis was based on research conducted by Schwarz (2000) on the influence of emotions on cognition. The findings of the current study provided evidence for a positive effect of self-compassion on attitude, but the mediating effect

of the experienced negative emotions was not confirmed. The role of emotions in cognitions and decision-making is variable and complex (Blanchette & Richards, 2010), which may explain the lack of evidence in this study on the mediating effect of emotions on attitude. Even so, the effect of self-compassion on attitudes towards alcohol consumption was profound, especially after one week. Furthermore, as attitude was a significant predictor of alcohol consumption, self-compassion may be a great opportunity to improve adherence to medical or nutritional recommendations.

Support was found for the hypothesized effect of self-compassion on defensive avoidance reactions. This suggests that the immediate reactions of fear or anxiety to read nutritional recommendations, after being confronted with an unpleasant event, may decrease after a self-compassion intervention. Kelly et al. (2009) found a similar effect among patients with severe acne, where self-compassion seemed to reduce the feelings of shame and blame. The induction of self-compassion, through a relatively simple exercise, may be an interesting way for medics to reduce resistance to nutritional or medical recommendations.

The effect of self-compassion on perceived self-efficacy has received limited attention in current research. Iskender (2009) found a positive relation between level of self-compassion, perceived self-efficacy, and control beliefs. As far as we know, the question whether increased self-compassion would lead to a higher perceived self-efficacy was not researched before. However, as perceived self-efficacy is positively related to an active adjustment style in breast cancer patients (Rottmann, Dalton, Christensen, Frederiksen, & Johansen, 2010), increasing self-efficacy through self-compassion interventions may help cancer patients to cope with their disease. The results of this study suggest that induced self-compassion can help in increasing perceived self-efficacy.

Very interestingly, some gender differences were found on the aforementioned variables (i.e., attitude, defensive avoidance, and self-efficacy). Differences in self-efficacy scores

across the two conditions were found for women, but not for men. Similarly, significant differences on attitude were found for men across the two conditions, but not for women (in the experiment phase). Although no interaction test was conducted, this suggests that the effect of self-compassion may differ across gender. This hypothesis deserves more attention in future research and implies that a different approach for men and women may be necessary, for example when self-compassion is used in intervention settings. That is, a self-compassion intervention may, for example, be specifically useful for women when directed at increasing perceived self-efficacy, and for men when directed at changing attitudes. Even though the effect of self-compassion on behaviour was consistent across gender, the different pathways through which self-compassion works, leaves room for more research.

A part of the model that could not be confirmed was the expected relation between self-compassion and intention. The intention to follow nutritional recommendations was not higher in the self-compassion condition. Results do show that the average alcohol consumption was much lower in the self-compassion group after one week (i.e., behaviour). This finding may be considered incompatible with the previous observation that the intention to reduce alcohol consumption was not higher in the self-compassion condition. But a gap between intention and behaviour could have arisen because asking for intentions requires a conscious evaluation of the behavioural options, whereas the behaviour in itself (i.e., alcohol consumption) could have been performed, at least partially, unconscious. Self-compassion does not aim to change cognitions in itself, but performs rather unconscious in the evaluation of, for example, negative events. As Leary et al. (2007) conclude, self-compassion is not aimed at changing people's self-evaluations, as many cognitive-behavioural approaches do, but rather it focuses on changing people's relationships to their self-evaluations. Thus, self-compassion does not influence cognitions directly (and so the conscious evaluation of intentions would show no result), but it influences cognitions indirectly by changing the way

in which a person looks at the world and at itself (which would be visible in the unconscious evaluation, translated into behaviour).

This research offers useful insights with regard to the induction of self-compassion and its effect on social psychological constructs such as attitude and behaviour. It adds to the small existing body of research dealing with self-compassion. The ideas derived from this experiment could contribute to the development of new interventions aiming at health-related behaviour change. Induced self-compassion may help medics to reduce the resistance to health information in patients and in that way promote adherence. And finally, induced self-compassion may help patients with life-threatening or chronic diseases to take action for a better quality of life.

### *7.3 Limitations and future directions*

The starting point of this research was the hypothesis that self-compassionate people would experience less negative emotions after a negative event. Therefore, during the experiment reported in this thesis, the participants were exposed to a cancer related movie and an essay-writing assignment about cancer. As expected, the participants in both conditions scored equally on negative affect after this phase of the experiment. Nonetheless, judging the average negative affect scores ( $M = 3.75$ ,  $SD = 1.28$ ), it can be argued that the induction of negative affect was limited. This implies that the level of negative affect may have been low at the start of the experiment which may, in turn, have limited the effect of self-compassion on subsequent measures.

Following the induction of negative emotions, participants were either presented with a self-compassion assignment or a journey control assignment. The manipulation check showed that, at the end of the experiment, both conditions scored equally on the self-compassion scale, meaning that the manipulation could possibly have failed. However, finding no significant difference in self-compassion could also be explained by other factors. First of all,

it may be possible that a self-compassion exercise needs time to have an effect on conscious measures such as attitude or intention. In a study conducted by Neff et al. (2007) the effect of induced self-compassion on psychological wellbeing was measured after a one-month interval. Typically, Mindfulness-Based Stress Reduction courses (which are based on self-compassion theory) take about 6 to 8 weeks (see for example: Mackenzie, Carlson, Munoz, & Speca, 2007; Shapiro, Astin, Bishop, & Cordova, 2005). This idea, that people need some time to ‘digest’ the self-compassion exercise, is supported by the finding that the difference in attitude between the two conditions was much larger after one week than right after the experiment.

Secondly, it should be mentioned that a self-report scale of self-compassion was used in this study, which may be limited in its ability to assess the individual’s level of self-compassion. People may not be aware of how they deal with emotions and may be unable to accurately assess their level of self-compassion, as has been put forward by Neff (2003a) as well. Moreover, the lack of difference in self-compassion during the manipulation check could also be explained by the fact that 12 items were selected from the original 26 items of the self-compassion scale and were translated into Dutch. Although the reliability of the scale was sufficient, this may have caused that no effect was found of the manipulation on the self-compassion scale.

No significant differences on the experienced negative emotions across the two conditions were found, whereas many studies have consistently found that self-compassion is negatively correlated with negative emotions (Leary et al., 2007; Neff, 2011; Neff, Kirkpatrick et al., 2007). One of the explanations for the incongruence between the findings of this study and previous studies has already been addressed. It may be possible that the induction of negative affect at the beginning of the experiment was limited, which possibly led to a lack of significant difference in the subsequent measure of negative emotions (so-called floor-effect).



A second explanation for a lack of difference in negative emotions across the two conditions may be found in the measure used in this study. Even though the PANAS showed high internal reliability, some of the items of this scale could be considered, by the participants, as not applicable to the situation of a cancer diagnosis (for example the items ‘guilty’ or ‘hostile’). Additionally, it may be possible that no significant differences were found because the possible effect of self-compassion was nullified by the fact that participants in the self-compassion condition wrote two assignments on cancer, whereas participants in the control condition wrote only once about cancer.

Some limitations need to be highlighted with regard to the findings of this study as well. First of all, no measure of self-compassion was conducted at baseline, meaning that participants in one condition could have had a higher average self-compassion score at the beginning of the experiment. As far as we know, there are only three studies in which self-compassion was induced (Kelly et al., 2010; Leary et al., 2007; Neff, Kirkpatrick et al., 2007), apart from research done on the Mindfulness-Based Stress Reduction program. Of these three studies, two studies had a baseline measure of self-compassion which was included in a questionnaire that was done three weeks before the actual experiment (Leary et al., 2007; Neff, Kirkpatrick et al., 2007). The specific order of the experiment discussed here, with no baseline measure and a manipulation check at the end, was chosen to assure that no self-compassion could be induced by scoring the self-compassion items.

A second limitation may be the order of the induction of negative emotions and the manipulation. It could be argued that this order should be reversed, as self-compassion should help to deal with negative life-events. The specific set-up of this experiment was chosen to simulate the real life situation in which people are diagnosed with cancer and receive a self-compassion exercise/therapy. In the induced self-compassion experiment by Leary et al. (2007), participants followed the same order of activities, where they first had to describe a

negative event they had experienced, and secondly describe the same event in a self-compassionate manner. A reversed order, in which the self-compassion exercise occurs before the negative event, would perhaps show a stronger result on, for example, the experienced negative emotions after that event. However, this may not represent a realistic situation in which people would receive the self-compassion therapy.

A third limitation that needs to be addressed is the possible bias in the exclusion of participants from the analysis. Men found it particularly hard to write in a self-compassionate way, whereas they scored significantly higher on self-compassion than women. By excluding many male participants from the self-compassion condition, it may be possible that the results are biased. However, as many differences were significant for both men and women separately, it can be argued that the bias may be limited.

A fourth caveat is the self-reported nature of the average alcohol consumption after one week. The results of this study provide evidence that self-compassionate people had reduced their alcohol consumption significantly more than less self-compassionate people. These results may have arisen because the participants were giving social desirable answers. Participants in the self-compassion condition thought twice about cancer, which may have made them more aware of the risks of alcohol consumption than participants in the journey control condition. The participants in the self-compassion condition, however, did not only report a lower average alcohol consumption, they also more often reported to not have had any alcoholic beverages, which may be a more reliable measure of behaviour. Secondly, several researchers have concluded that the self-reported nature of alcohol consumption does not need to be problematic, especially for light or moderate drinkers (Del Boca & Darkes, 2003; Northcote & Livingston, 2011). Nonetheless, future research should include more objective measures (e.g., biochemical measures) to test the idea that self-compassion can reduce alcohol consumption.

Finally, a limitation of this study is the possibility to extrapolate the findings to other situations. This experiment was conducted among university students who were exposed to a cancer-related movie and an essay-writing assignment about a hypothetical cancer diagnosis. In no means can these results be extrapolated, one-on-one, to patients who are diagnosed with cancer. However, the mechanisms studied in this experiment may be applicable to negative life-events as well. Very promising are studies on the Mindfulness Based Stress Reduction program, which have shown that self-compassion therapy can have positive effects on psychological and physiological outcomes in more severe negative life-events (see for example: Grossman et al., 2004; Lengacher et al., 2009; Smith et al., 2005). Nonetheless, the question remains to which extent a simple training in self-compassion buffers people against challenges in their daily life and enables them to take action.

Many interesting effects of self-compassion have been discussed in this paper. However, there are many questions left unanswered and there are still many knowledge gaps that need to be filled. The first gap that deserves more attention is the effect of induced self-compassion, as the existing literature on self-compassion is largely cross-sectional and does not allow for the establishment of causal relations. Secondly, the effect of induced self-compassion after a negative event deserves more attention. As far as we know, there are only three studies conducted in which self-compassion was induced, of which only one focused on coping with a negative event (Leary et al., 2007). Additionally, in this study participants were not really confronted with a negative event, but were asked to recall a negative event (Leary et al., 2007). The effect of induced self-compassion on different psychological constructs (e.g., behaviour, attitude, and self-efficacy) after a negative event is still unclear. The third focus could be on identifying which people benefit from self-compassion interventions and, more specifically, in which ways. The results of this study suggest that men may respond differently to a self-compassion intervention than women. Research conducted by Leary et al.

(2007) has shown that especially people with low self-esteem benefit from increased self-compassion. Perhaps other variables may determine how people respond to a self-compassion intervention as well.

## 8. Conclusion

In conclusion, this research has sought to unravel some of the possible mechanisms behind self-compassion as a means to foster health behaviour change after a negative life-event. Results show that participants in the self-compassion condition had more positive attitudes towards health information, showed less defensive avoidance reactions, and had a higher perceived self-efficacy to reduce alcohol consumption. Finally, self-compassionate people had consumed less alcohol after one week, than less self-compassionate people. This suggests that induced self-compassion may reduce the resistance to health information and help people to take action for a higher quality of life.

## References

- Azjen, I. (1985). From intentions to actions: A theory of planned behaviour. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behaviour* (pp. 11-39). Heidelberg: Springer.
- Baldwin, K. M., Baldwin, J. R., & Ewald, T. (2006). The relationship among shame, guilt, and self-efficacy. *American Journal of Psychotherapy, 60*, 1-21.
- Barrera, R. (2002). Nutritional support in cancer patients. *Journal of Parenteral and Enteral Nutrition, 26*, S63-S71.
- Blanchette, I., & Richards, A. (2010). The influence of affect on higher level cognition: A review of research on interpretation, judgement, decision making and reasoning. *Cognition & Emotion, 24*, 561-595.
- Bloch, A. (2000). Nutrition support in cancer. *Seminars in oncology nursing, 16*, 122-127.
- Caetano, R., & Clark, C. L. (1999). Trends in situational norms and attitudes toward drinking among whites, blacks, and hispanics: 1984-1995. *Drug and Alcohol Dependence, 54*, 45-56.
- Carlson, L. E., Angen, M., Cullum, J., Goodey, E., Koopmans, J., Lamont, L., et al. (2004). High levels of untreated distress and fatigue in cancer patients. *British Journal of Cancer, 90*, 2297-2304.
- Centraal Bureau voor de Statistiek. (2011). *Gezondheid en zorg in cijfers*. The Hague: Drukkerij Tuijtel.
- Crocker, J., & Park, L. E. (2004). The costly pursuit of self-esteem. *Psychological Bulletin, 130*, 392-414.
- Del Boca, F. K., & Darkes, J. (2003). The validity of self-reports of alcohol consumption: State of the science and challenges for research. *Addiction, 98*, 1-12.

- Donaldson, M. S. (2004). Nutrition and cancer: A review of the evidence for an anti-cancer diet. *Nutrition Journal*, 3.
- Doyle, C., Kushi, L. H., Byers, T., Courneya, K. S., Demark-Wahnefried, W., Grant, B., et al. (2006). Nutrition and physical activity during and after cancer treatment: An American Cancer Society guide for informed choices. *Ca-a Cancer Journal for Clinicians*, 56, 323-353.
- Franck, E., & De Raedt, R. (2007). Self-esteem reconsidered: Unstable self-esteem outperforms level of self-esteem as vulnerability marker for depression. *Behaviour Research and Therapy*, 45, 1531-1541.
- Greenwald, A. G., & Ronis, D. L. (1978). Twenty years of cognitive dissonance: Case study of the evolution of a theory. *Psychological Review*, 85, 53-57.
- Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research*, 57, 35-43.
- Huhmann, M. B., & August, D. A. (2009). Review: Nutrition support in surgical oncology. *Nutrition in Clinical Practice*, 24, 520-526.
- Iskender, M. (2009). The relationship between self-compassion, self-efficacy, and control belief about learning in Turkish university students. *Social Behavior and Personality*, 37, 711-720.
- Jessop, D. C., Simmonds, L. V., & Sparks, P. (2009). Motivational and behavioural consequences of self-affirmation interventions: A study of sunscreen use among women. *Psychology and Health*, 24, 529-544.
- Kelly, A. C., Zuroff, D. C., Foa, C. L., & Gilbert, P. (2010). Who benefits from training in self-compassionate self-regulation? A study of smoking reduction. *Journal of Social and Clinical Psychology*, 29, 727-755.

- Kelly, A. C., Zuroff, D. C., & Shapira, L. B. (2009). Soothing oneself and resisting self-attacks: The treatment of two intrapersonal deficits in depression vulnerability. *Cognitive Therapy and Research*, 33, 301-313.
- KWF Kankerbestrijding. (2011). KWF Voedingschecklist. Retrieved 15 September, 2011, from <http://kanker.kwfkankerbestrijding.nl/Leven-met-kanker/Pages/voeding-bij-kanker.aspx>
- Leary, M. R., Tate, E. B., Adams, C. E., Allen, A. B., & 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, 887-904.
- Lengacher, C. A., Johnson-Mallard, V., Post-White, J., Moscoso, M. S., Jacobsen, P. B., Klein, T. W., et al. (2009). Randomized controlled trial of mindfulness-based stress reduction (MBSR) for survivors of breast cancer. *Psycho-Oncology*, 18, 1261-1272.
- Mackenzie, M. J., Carlson, L. E., Munoz, M., & Speca, M. (2007). A qualitative study of self-perceived effects of Mindfulness-based Stress Reduction (MBSR) in a psychosocial oncology setting. *Stress and Health*, 23, 59-69.
- 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, 363-382.
- Maxwell, N. L., & Lopus, J. S. (1994). The Lake Wobegon Effect in Student Self-Reported Data. *The American Economic Review*, 84, 201-205.
- Meulenpas, J. M., & Kiemeny, L. A. L. M. (2011). *Kanker in Nederland tot 2020. Trends en prognoses*: KWF Kankerbestrijding.
- Morgenstern, M., Isensee, B., Sargent, J. D., & Hanewinkel, R. (2011). Attitudes as mediators of the longitudinal association between alcohol advertising and youth drinking. *Archives of Pediatrics and Adolescent Medicine*, 165, 610-616.

- Napper, L., Harris, P. R., & Epton, T. (2009). Developing and testing a Self-affirmation manipulation. *Self and Identity*, 8, 45-62.
- Neff, K. D. (2003a). The Development and Validation of a Scale to Measure Self-Compassion. *Self and Identity*, 2, 223-250.
- Neff, K. D. (2003b). Self-Compassion: An Alternative Conceptualization of a Healthy Attitude Toward Oneself. *Self and Identity*, 2, 85-101.
- Neff, K. D. (2011). Self-compassion, self-esteem, and well-being. *Social and Personality Psychology Compass*, 5, 1-12.
- Neff, K. D., Hsieh, Y.-P., & Dejitterat, K. (2005). Self-compassion, Achievement Goals, and Coping with Academic Failure. *Self and Identity*, 4, 263-287.
- Neff, K. D., Kirkpatrick, K. L., & Rude, S. S. (2007). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality*, 41, 139-154.
- Neff, K. D., Rude, S. S., & Kirkpatrick, K. L. (2007). An examination of self-compassion in relation to positive psychological functioning and personality traits. *Journal of Research in Personality*, 41, 908-916.
- Nitenberg, G., & Raynard, B. (2000). Nutritional support of the cancer patient: issues and dilemmas. *Critical Reviews in Oncology/Hematology*, 34, 137-168.
- Northcote, J., & Livingston, M. (2011). Accuracy of self-reported drinking: Observational verification of 'last occasion' drink estimates of young adults. *Alcohol and Alcoholism*, 46, 709-713.
- Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 123-205). New York: Academic Press.



- Pyszczynski, T., Solomon, S., Greenberg, J., Arndt, J., & Schimel, J. (2004). Why do people need self-esteem? A theoretical and empirical review. *Psychological Bulletin*, *130*, 435-468.
- Risch, A. K., Buba, A., Birk, U., Morina, N., Steffens, M. C., & Stangier, U. (2010). Implicit self-esteem in recurrently depressed patients. *Journal of Behavior Therapy and Experimental Psychiatry*, *41*, 199-206.
- Rottmann, N., Dalton, S. O., Christensen, J., Frederiksen, K., & Johansen, C. (2010). Self-efficacy, adjustment style and well-being in breast cancer patients: a longitudinal study. *Quality of Life Research*, *19*, 827-836.
- Rutten, L. J. F., Arora, N. K., Bakos, A. D., Aziz, N., & Rowland, J. (2005). Information needs and sources of information among cancer patients: a systematic review of research (1980–2003). *Patient Education and Counseling*, *57*, 250-261.
- Schwarz, N. (2000). Emotion, cognition, and decision making. *Cognition and Emotion*, *14*, 433-440.
- Shapiro, S. L., Astin, J. A., Bishop, S. R., & Cordova, M. (2005). Mindfulness-based stress reduction for health care professionals: Results from a randomized trial. *International Journal of Stress Management*, *12*, 164-176.
- Smith, J. E., Richardson, J., Hoffman, C., & Pilkington, K. (2005). Mindfulness-based stress reduction as supportive therapy in cancer care: Systematic review. *Journal of Advanced Nursing*, *52*, 315-327.
- Talosig-Garcia, M., & Davis, S. W. (2005). Information-seeking behavior of minority breast cancer patients: An exploratory study. *Journal of Health Communication*, *10*, 53-64.
- Terry, M. L., & Leary, M. R. (2011). Self-compassion, self-regulation, and health. *Self and Identity*, *10*, 352-362.

- Vickery, C. D., Sepehri, A., Evans, C. C., & Lee, J. E. (2008). The Association of Level and Stability of Self-Esteem and Depressive Symptoms in the Acute Inpatient Stroke Rehabilitation Setting. *Rehabilitation Psychology, 53*, 171-179.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.
- World Cancer Research Fund / American Institute for Cancer Research. (2007). *Food, Nutrition, Physical Activity and the Prevention of Cancer: a Global Perspective*. Washington DC: AICR.
- World Health Organization. (2011). Fact sheet cancer. Retrieved 15 September, 2011, from <http://www.who.int/mediacentre/factsheets/fs297/en/>
- Zabora, J., Brintzenhofesoc, K., Curbow, B., Hooker, C., & Piantadosi, S. (2001). The prevalence of psychological distress by cancer site. *Psycho-Oncology, 10*, 19-28.

**Informed Consent.**  
**Datum: 1 November 2011**

Dit onderzoek heeft als hoofdonderwerp kanker. Tijdens het onderzoekje krijg je informatie over kanker. Het is mogelijk dat de informatie door sommige mensen als onprettig of bedreigend wordt ervaren. Om deze reden ben je vrij om te allen tijde het onderzoek te verlaten, zonder opgave van reden.

Het onderzoek duurt ongeveer 8-10 minuten. Na het zien van een filmpje vul je een vragenlijst in, waarna het onderzoek is afgelopen.

Het onderzoek is anoniem en de resultaten zullen volledig geanonimiseerd worden. Dit betekent dat in de resultaten nooit te zien zal zijn wie wat heeft gezegd in dit onderzoek. Verder heeft alleen de onderzoeker toegang tot de ingevulde vragenlijsten. Bij aanvang van dit onderzoek heb je een vragenlijst gekregen waarop een ID-nummer staat. Iedere deelnemer heeft een unieke ID, die nooit aan de persoon gekoppeld kan worden.

Na het afronden van het onderzoek krijgt iedere deelnemer een attentie.

We vragen je dit formulier te ondertekenen. Hiermee geef je aan dat je deze informatie hebt gelezen en begrepen. Daarnaast verleent je toestemming voor deelname aan dit onderzoek.

Mocht je na afloop nog vragen hebben over dit onderzoek dan kun je contact opnemen met Sabina Super ([sabina.super@wur.nl](mailto:sabina.super@wur.nl)).

**Naam:**

**Handtekening:**

## Appendix 2: Questionnaire pre-test

In te vullen door de onderzoeksassistent!!

Enquetenummer:

Tag:

Datum:

Tijd:

### Enquête

Je neemt deel aan een onderzoek naar emoties die mensen ervaren bij het kijken naar een film. Dit onderzoek duurt ongeveer 8-10 minuten. Voordat je mag deelnemen aan dit onderzoek moet je eerst het informed consent formulier ondertekenen. Met dit formulier geef je aan dat je vrijwillig aan dit onderzoek deelneemt.

Na het lezen van de instructies kun je beginnen met stap 1, die staat uitgelegd onder aan deze pagina. Voer deze opdracht helemaal uit, voordat je de pagina omslaat.

Alle antwoorden zijn anoniem en kunnen in geen geval aan een persoon worden gekoppeld. Na afloop van dit onderzoek krijgt iedere deelnemer een kleine attentie.

Bedankt voor het invullen!

**Stap 1: Je krijgt zo een filmpje te zien met als onderwerp kanker. Het filmpje duurt slechts enkele minuten. Bekijk het filmpje dat klaar staat op de computer. Nadat het filmpje is afgelopen mag je de pagina omslaan en de vragen beantwoorden.**

**Stap 2: Beantwoord de volgende vragen.**

**Vraag 1:** Geef aan in hoeverre je de volgende emoties op dit moment ervaart van ‘helemaal niet’ tot ‘heel erg veel’.

	Helemaal niet	Niet	Weinig	Neutraal	Een beetje	Veel	Heel erg veel
Bang	1	2	3	4	5	6	7
Oplettend	1	2	3	4	5	6	7
Nerveus	1	2	3	4	5	6	7
Trots	1	2	3	4	5	6	7
Geschrokken	1	2	3	4	5	6	7
Sterk	1	2	3	4	5	6	7
Ontstelt	1	2	3	4	5	6	7
Actief	1	2	3	4	5	6	7
Schuldig	1	2	3	4	5	6	7
Opgewekt	1	2	3	4	5	6	7
Vijandig	1	2	3	4	5	6	7
Geïnspireerd	1	2	3	4	5	6	7
Beschaamd	1	2	3	4	5	6	7
Opgewonden	1	2	3	4	5	6	7
Zenuwachtig	1	2	3	4	5	6	7
Vastbesloten	1	2	3	4	5	6	7
Prikkelbaar	1	2	3	4	5	6	7
Geïnteresseerd	1	2	3	4	5	6	7
Bekommerd	1	2	3	4	5	6	7
Enthousiast	1	2	3	4	5	6	7

**Vraag 2:** Geef aan in hoeverre je het eens bent met de volgende stellingen van ‘helemaal mee oneens’ tot ‘helemaal mee eens’.

	Helemaal mee oneens	Oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Helemaal mee eens
Toen ik dit filmpje zag was het eerste wat ik dacht: dit wil ik niet zien	1	2	3	4	5	6	7
Ik vind het filmpje overdreven	1	2	3	4	5	6	7
Ik vind dat het filmpje mijn gevoelens manipuleert	1	2	3	4	5	6	7
Ik vind dat het filmpje de werkelijkheid geweld aan doet	1	2	3	4	5	6	7
Ik vind het filmpje te beangstigend	1	2	3	4	5	6	7
Ik vind dat het verhaal wordt opgeblazen	1	2	3	4	5	6	7

**Vraag 3:** Geef aan in hoeverre je het eens bent met de volgende stellingen van ‘helemaal mee eens’ tot ‘helemaal mee eens’.

Ik vind het filmpje.....	Helemaal mee oneens	Oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Helemaal mee eens
<b>Realistisch</b>	1	2	3	4	5	6	7
<b>Aangrijpend</b>	1	2	3	4	5	6	7
<b>Interessant</b>	1	2	3	4	5	6	7
<b>Onecht</b>	1	2	3	4	5	6	7
<b>Choquerend</b>	1	2	3	4	5	6	7
<b>Ontroerend</b>	1	2	3	4	5	6	7
<b>Boeiend</b>	1	2	3	4	5	6	7

**Stap 3: Beantwoord de volgende algemene vragen.**

**Vraag 4:** Wat is je geslacht?

- Man
- Vrouw

**Vraag 5:** Wat is je leeftijd?

\_\_\_\_\_ jaar

**Vraag 6:** In welk domein valt jouw studieprogramma?

- Maatschappij en Economie
- Technologie en Voeding
- Biologie, Plant en Dieren
- Milieu en Landschap

Hiermee zijn we aan het einde gekomen van deze vragenlijst. Hartelijk dank voor het invullen!!

### Appendix 3: Item translation and references pre-test

#### Emotions

These 20 items consist of the positive and negative PANAS subscale (PANAS-scale: Watson, Clark, & Tellegen, 1988): Afraid, attentive, nervous, proud, scared, strong, upset, active, guilty, alert, hostile, inspired, ashamed, excited, jittery, determined, irritable, interested, distressed, enthusiastic.

- |                       |                           |
|-----------------------|---------------------------|
| 1. <i>bang</i>        | 11. <i>vijandig</i>       |
| 2. <i>oplettend</i>   | 12. <i>geïnspireerd</i>   |
| 3. <i>nerveus</i>     | 13. <i>beschaamd</i>      |
| 4. <i>trots</i>       | 14. <i>opgewonden</i>     |
| 5. <i>geschrokken</i> | 15. <i>zenuwachtig</i>    |
| 6. <i>sterk</i>       | 16. <i>vastbesloten</i>   |
| 7. <i>ontstelt</i>    | 17. <i>prikkelbaar</i>    |
| 8. <i>actief</i>      | 18. <i>geïnteresseerd</i> |
| 9. <i>schuldig</i>    | 19. <i>bekommerd</i>      |
| 10. <i>opgewekt</i>   | 20. <i>Enthousiast</i>    |

#### Defensive avoidance

The first item is adapted from Jessop et al. (2009) by making the defensive avoidance question relevant for this research.

1. *Toen ik dit filmpje zag was het eerste wat ik dacht: dit wil ik niet zien.*

The following 4 items were adapted for Jessop et al. (2009) by making the message derogation questions relevant for this research.

2. *Ik vind het filmpje overdreven*
3. *Ik vind dat het filmpje mijn gevoelens manipuleert*

4. *Ik vind dat het filmpje de werkelijkheid geweld aan doet*

5. *Ik vind dat het verhaal wordt opgeblazen*

The following item was added to see how people felt about the movie.

6. *Ik vind het filmpje te beangstigend*

### Attitude

The following items were formulated to measure the attitude of the participants towards the movie.

*Ik vind het filmpje:*

1. *Realistisch*

2. *Aangrijpend*

3. *Interessant*

4. *Onecht*

5. *Choquerend*

6. *Ontroerend*

7. *Boeiend*



## Appendix 4: Informed consent experiment

### Informed Consent

Dit onderzoek heeft als onderwerp de relatie tussen alcohol en kanker. Tijdens het onderzoek krijg je informatie over alcohol en kanker. Het is mogelijk dat de informatie door sommige mensen als onprettig of bedreigend wordt ervaren.

Het onderzoek duurt ongeveer 15-20 minuten. Na het zien van een filmpje vul je een vragenlijst in en lees je een informatiebrochure over alcoholconsumptie. Na een week ontvang je nogmaals een korte vragenlijst (ongeveer 5 minuten), waarna het onderzoek is afgelopen.

Tijdens dit onderzoek ben je vrij om ten allen tijde je terug te trekken, zonder opgaaf van reden.

Het onderzoek is anoniem en de resultaten zullen volledig geanonimiseerd worden. Dit betekent dat in de resultaten nooit te zien zal zijn wie wat heeft gezegd in dit onderzoek. Verder heeft alleen de onderzoeker toegang tot de ingevulde vragenlijsten. We vragen je naam in te vullen op de voorkant van de eerste vragenlijst, zodat we de vragenlijst die je over een week invult aan de juiste persoon kunnen koppelen. Deze gegevens zullen nooit doorgespeeld worden aan derden.

Na het afronden van het onderzoek krijgt iedere deelnemer een attentie. Als je ook de tweede vragenlijst invult, maak je bovendien kans op één van de 10 waardebonnen ter waarde van €10.

We vragen je dit formulier te ondertekenen. Hiermee geef je aan dat je deze informatie hebt gelezen en begrepen. Daarnaast verleen je toestemming voor deelname aan dit onderzoek.

Mocht je na afloop nog vragen hebben over dit onderzoek dan kun je contact opnemen met Sabina Super ([sabina.super@wur.nl](mailto:sabina.super@wur.nl)).

**Naam:** .....

**Datum:** .....

**Handtekening:** .....

## Appendix 5: Presentation experiment (journey control condition)

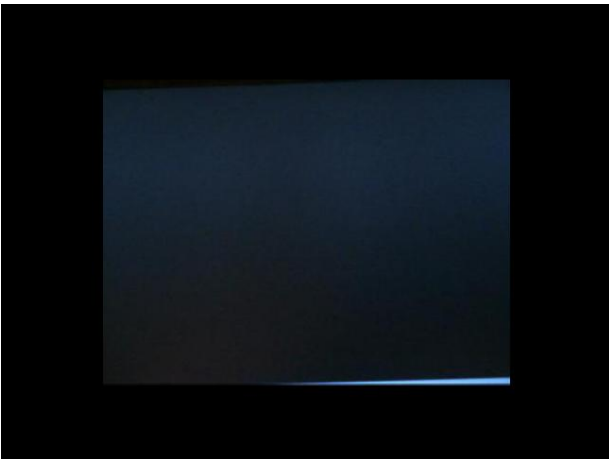
### Welkom bij het onderzoek

- Lees de instructies op het voorblad
- Vul je naam en e-mailadres in
- Onderteken het informed consent formulier

Als je klaar bent, klik dan [hier](#) om met het experiment te beginnen.

Je krijgt zo een filmpje te zien van enkele minuten. Het filmpje start automatisch als je naar de volgende pagina gaat. Na afloop krijg je een aantal vragen om te beantwoorden.

Klik [hier](#) om naar het filmpje te gaan.



Vraag 1: Beschrijf hoe jij je zou voelen als er kanker bij je zou worden geconstateerd. Je kunt je hierbij de volgende vragen stellen (je mag ook zelf vragen bedenken).

- Hoe zou je je voelen op het moment dat de dokter je vertelt dat je kanker hebt?
- Hoe zou je aan je vrienden vertellen dat je kanker hebt en hoe zou je je dan voelen?
- Hoe zou je je voelen als je aan de behandeling begint, zou je bang zijn?
- etc.

Beschrijf bij vraag 1 van de enquête hoe jij je zou voelen in deze situatie. Schrijf in ieder geval het tekstvlak op deze pagina vol.

Als je klaar bent met schrijven, klik dan [hier](#).

Maak nu vraag 2 van de enquête.

Als je klaar bent met vraag 2, klik dan [hier](#).

Vraag 3: Om te kijken hoeveel details mensen kunnen onthouden van hun dagelijkse activiteiten, vragen we je de reis van je huis tot aan de universiteit te beschrijven. Denk hierbij aan de kruisingen die je oversteekt, de gebouwen die je tegenkomt of andere details die je hebt onthouden.

Beschrijf deze reis bij vraag 3 van de enquête en schrijf het tekstvlak op deze pagina vol.

Als je klaar bent met deze opdracht, klik dan [hier](#).

Lees onderstaande foldertje die gaat over de relatie tussen alcohol en kanker.

Alcohol drinken is niet gezond. Aan het drinken van alcohol is altijd een zeker risico verbonden. Zo kan ook regelmatig gebruik van kleine hoeveelheden leiden tot gewenning en overmatig gebruik. Grootschalig onderzoek heeft uitgewezen dat de stof alcohol een kankerverwekkende stof is. Hierbij is geen veilige ondergrens vastgesteld. Zo hebben vrouwen bijvoorbeeld ook bij de 'aanvaardbare' hoeveelheid een lichtverhoogd risico op borstkanker. Alcohol was in 2008 verantwoordelijk voor ongeveer 13.000 gevallen van kanker, op een totaal van 304.000 gevallen. Eerdere studies hebben al een verband aangetoond tussen alcohol en kanker aan de borst, lever, maag, dikke darm en slokdarm.

Wie meer drinkt dan de richtlijnen voor aanvaardbaar alcoholgebruik, loopt meer kans op gezondheidschade. Dit kan tot uiting komen in: een hoge bloeddruk, een hersenbloeding, leveraandoeningen, orgaanbeschadigingen, diverse soorten kanker, verslaving en andere gezondheidsklachten.

Gematigd alcohol drinken om je gezondheid te verbeteren, is onzin. Geen alcohol drinken is in alle gevallen beter dan wel alcohol drinken. Bovendien heeft gezond eten en genoeg bewegen veel meer effect. Verder adviseert De Gezondheidsraad gezonde volwassen mannen niet meer dan 2 standaardglazen alcohol per dag te drinken en gezonde volwassen vrouwen niet meer dan 1 standaardglas.

Als je klaar bent met lezen, klik dan [hier](#).

Maak nu vraag 4 t/m 8.

Als je klaar bent met de vragen, klik dan [hier](#).

Maak nu vragen 9 t/m 13.

Als je klaar bent, klik dan [hier](#).

Beantwoord nog wat algemene vragen (vragen 14 t/m 19).

Als je klaar bent met de vragen, klik dan [hier](#).

Einde van de vragenlijst!

Lever je enquête in bij de onderzoeksassistent inclusief de informed consent formulier.

Je ontvangt een klein bedankje voor je deelname.

Vergeet niet de digitale enquête in te vullen die je over een week in je mailbox ontvangt! Alleen als je deze enquête invult, maak je kans op één van de waardebonnen.

Hartelijk dank voor je deelname!

## Appendix 6: Presentation experiment (self-compassion condition)

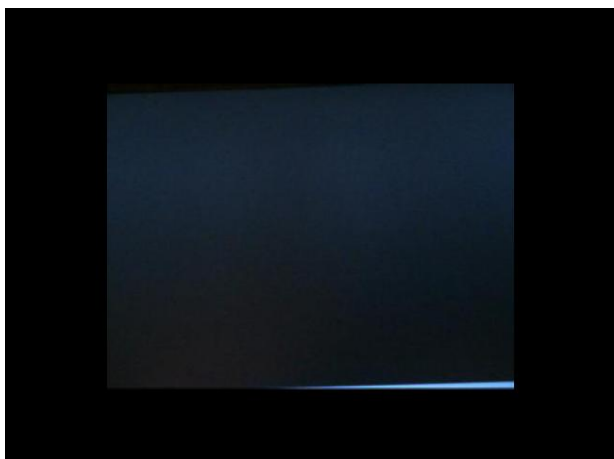
### Welkom bij het onderzoek

- Lees de instructies op het voorblad
- Vul je naam en e-mailadres in
- Onderteken het informed consent formulier

Als je klaar bent, klik dan [hier](#) om met het experiment te beginnen.

Je krijgt zo een filmpje te zien van enkele minuten. Het filmpje start automatisch als je naar de volgende pagina gaat. Na afloop krijg je een aantal vragen om te beantwoorden.

Klik [hier](#) om naar het filmpje te gaan.



Vraag 1: Beschrijf hoe jij je zou voelen als er kanker bij je zou worden geconstateerd. Je kunt je hierbij de volgende vragen stellen (je mag ook zelf vragen bedenken).

- Hoe zou je je voelen op het moment dat de dokter je vertelt dat je kanker hebt?
- Hoe zou je aan je vrienden vertellen dat je kanker hebt en hoe zou je je dan voelen?
- Hoe zou je je voelen als je aan de behandeling begint, zou je bang zijn?
- etc.

Beschrijf bij vraag 1 van de enquête hoe jij je zou voelen in deze situatie. Schrijf in ieder geval het tekstvlak op deze pagina vol.

Als je klaar bent met schrijven, klik dan [hier](#).

Maak nu vraag 2 van de enquête.

Als je klaar bent met vraag 2, klik dan [hier](#).

Vraag 3: Beschrijf nu de zelfde situatie waarin je hoort dat je kanker zou hebben, maar houd je hierbij aan de volgende regels:

- Beschrijf de situatie op zo'n manier dat je begrip, vriendelijkheid en bezorgdheid naar jezelf toe uit, op een zelfde manier als je begrip zou uiten naar een vriend die in de zelfde situatie zou zitten. Wees dus lief naar jezelf toe.
- Beschrijf de situatie op een objectieve en ongeëmotioneerde manier.

Beschrijf deze situatie bij vraag 3 van de enquête en schrijf het tekstvlak op deze pagina vol.

Als je klaar bent met deze opdracht, klik dan [hier](#).

Lees onderstaande foldertje die gaat over de relatie tussen alcohol en kanker.

Alcohol drinken is niet gezond. Aan het drinken van alcohol is altijd een zeker risico verbonden. Zo kan ook regelmatig gebruik van kleine hoeveelheden leiden tot gewenning en overmatig gebruik. Grootschalig onderzoek heeft uitgewezen dat de stof alcohol een kankerverwekkende stof is. Hierbij is geen veilige ondergrens vastgesteld. Zo hebben vrouwen bijvoorbeeld ook bij de 'aanvaardbare' hoeveelheid een lichtverhoogd risico op borstkanker. Alcohol was in 2008 verantwoordelijk voor ongeveer 13.000 gevallen van kanker, op een totaal van 304.000 gevallen. Eerdere studies hebben al een verband aangetoond tussen alcohol en kanker aan de borst, lever, maag, dikke darm en slokdarm.

Wie meer drinkt dan de richtlijnen voor aanvaardbaar alcoholgebruik, loopt meer kans op gezondheidsschade. Dit kan tot uiting komen in: een hoge bloeddruk, een hersenbloeding, leveraandoeningen, orgaanbeschadigingen, diverse soorten kanker, verslaving en andere gezondheidsklachten.

Gematigd alcohol drinken om je gezondheid te verbeteren, is onzin. Geen alcohol drinken is in alle gevallen beter dan wel alcohol drinken. Bovendien heeft gezond eten en genoeg bewegen veel meer effect. Verder adviseert De Gezondheidsraad gezonde volwassen mannen niet meer dan 2 standaardglazen alcohol per dag te drinken en gezonde volwassen vrouwen niet meer dan 1 standaardglas.

Als je klaar bent met lezen, klik dan [hier](#).

Maak nu vraag 4 t/m 8.

Als je klaar bent met de vragen, klik dan [hier](#).

Maak nu vragen 9 t/m 13.

Als je klaar bent, klik dan [hier](#).

Beantwoord nog wat algemene vragen (vragen 14 t/m 19).

Als je klaar bent met de vragen, klik dan [hier](#).

Einde van de vragenlijst!

Lever je enquête in bij de onderzoeksassistent inclusief de informed consent formulier.

Je ontvangt een klein bedankje voor je deelname.

Vergeet niet de digitale enquête in te vullen die je over een week in je mailbox ontvangt! Alleen als je deze enquête invult, maak je kans op één van de waardebonnen.

Hartelijk dank voor je deelname!

## Appendix 7: Questionnaire 1

In te vullen door de onderzoeker!!

Enquetenummer:

Tag:

Datum:

Tijd:

### Experiment – alcohol en kanker

Je neemt deel aan een onderzoek die gaat over de relatie tussen alcohol en kanker. Dit onderzoek duurt ongeveer 15-20 minuten. Na een week ontvang je nog een kleine enquête die ongeveer 5 minuten duurt. Voordat je mag deelnemen aan dit onderzoek moet je eerst het informed consent formulier ondertekenen. Met dit formulier geef je aan dat je vrijwillig aan dit onderzoek deelneemt.

Na het lezen van de instructies en het ondertekenen van het informed consent formulier kun je beginnen met de enquête. De instructies verschijnen steeds op je beeldscherm. Als je klaar bent met de opdracht of de vragen kun je op ‘volgende’ klikken, waarna de volgende instructies verschijnen. Sla je papier pas om als de instructies daar om vragen.

Alle antwoorden zijn anoniem. Je wordt wel gevraagd een naam en e-mailadres in te vullen om alle gegevens die worden verzameld tijdens dit onderzoek bij elkaar te kunnen houden. Bij deelname krijg je een deelnemersnummer en zullen alle gegevens anoniem zijn, en kunnen achteraf in geen geval in verband gebracht worden met je naam.

Na afloop van dit onderzoek krijgt iedere deelnemer een kleine attentie. Als je de enquête invult die over een week in je mailbox verschijnt, dan maak je ook kans op één van de 10 cadeaubonnen ter waarde van €10.

Bedankt voor het invullen!

**Naam:** \_\_\_\_\_

**E-mailadres\*:** \_\_\_\_\_

\*Je e-mailadres wordt alleen gebruikt om de tweede enquête te versturen en na afloop niet door de onderzoeker bewaard.

⇒ **Volg nu de instructies op het scherm.**







**Vraag 4: Alcohol is een kankerverwekkende stof.**

- Waar
- Niet waar
- Weet ik niet

**Vraag 5: Het drinken van alcohol kan ook gezondheidsvoordelen hebben.**

- Waar
- Niet waar
- Weet ik niet

**Vraag 6: Het aanbevolen dagelijkse limiet aan alcohol voor mannen is 3 standaardglazen per dag.**

- Waar
- Niet waar
- Weet ik niet

**Vraag 7: Het aanbevolen dagelijkse limiet aan alcohol voor vrouwen is 1 standaardglazen per dag.**

- Waar
- Niet waar
- Weet ik niet

**Vraag 8: Geef aan in hoeverre je de volgende emoties ervaart na het lezen van de folder over alcohol en kanker van 'helemaal niet' tot 'heel erg veel'.**

	Helemaal niet	Niet	Weinig	Neutraal	Een beetje	Veel	Heel erg veel
<b>Bang</b>	1	2	3	4	5	6	7
<b>Oplettend</b>	1	2	3	4	5	6	7
<b>Nerveus</b>	1	2	3	4	5	6	7
<b>Trots</b>	1	2	3	4	5	6	7
<b>Geschrokken</b>	1	2	3	4	5	6	7
<b>Sterk</b>	1	2	3	4	5	6	7
<b>Ontstelt</b>	1	2	3	4	5	6	7
<b>Actief</b>	1	2	3	4	5	6	7
<b>Schuldig</b>	1	2	3	4	5	6	7
<b>Opgewekt</b>	1	2	3	4	5	6	7
<b>Vijandig</b>	1	2	3	4	5	6	7
<b>Geïnspireerd</b>	1	2	3	4	5	6	7
<b>Beschaamd</b>	1	2	3	4	5	6	7
<b>Opgewonden</b>	1	2	3	4	5	6	7
<b>Zenuwachtig</b>	1	2	3	4	5	6	7
<b>Vastbesloten</b>	1	2	3	4	5	6	7
<b>Prikkelbaar</b>	1	2	3	4	5	6	7
<b>Geïnteresseerd</b>	1	2	3	4	5	6	7
<b>Bekommerd</b>	1	2	3	4	5	6	7
<b>Enthousiast</b>	1	2	3	4	5	6	7

➔ Volg de instructies op het scherm.

**Vraag 9: Geef aan in hoeverre je het eens bent met de volgende stellingen van ‘helemaal mee oneens’ tot ‘helemaal mee eens’.**

	Helemaal mee oneens	Oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Helemaal mee eens
<b>Toen ik het foldertje las over alcohol en kanker, was mijn eerste reactie dat ik niet wilde nadenken over kanker.</b>	1	2	3	4	5	6	7
<b>Ik vind de informatie in het foldertje, over het risico van alcohol op kanker, overdreven.</b>	1	2	3	4	5	6	7
<b>Ik vind dat de informatie in het foldertje, over het risico van alcohol op kanker, mijn gevoelens manipuleert.</b>	1	2	3	4	5	6	7
<b>Ik vind dat de informatie in het foldertje, over het risico van alcohol op kanker, de werkelijkheid geweld aan doet.</b>	1	2	3	4	5	6	7
<b>Ik vind de informatie in het foldertje, over het risico van alcohol op kanker, te beangstigend.</b>	1	2	3	4	5	6	7
<b>Ik vind dat de informatie in het foldertje, over het risico van alcohol op kanker, wordt opgeblazen.</b>	1	2	3	4	5	6	7

**Vraag 10: Geef aan in hoeverre je het met de onderstaande stellingen eens bent van ‘helemaal oneens’ tot ‘helemaal mee eens’.**

	Helemaal mee oneens	Oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Helemaal mee eens
Dronken worden is leuk.	1	2	3	4	5	6	7
Een drankje op zijn tijd is één van de pleziertjes in het leven.	1	2	3	4	5	6	7
Drank kan het slechtste in de mens naar boven brengen.	1	2	3	4	5	6	7
Alcohol maakt me ontspannen.	1	2	3	4	5	6	7
Alcohol maakt me meer extravert.	1	2	3	4	5	6	7
Alcohol brengt me in een goede stemming.	1	2	3	4	5	6	7
Alcohol drinken is iets positiefs.	1	2	3	4	5	6	7
Alcohol drinken heeft ook z'n negatieve kanten.	1	2	3	4	5	6	7

**Vraag 11: Geef aan in hoeverre je het eens bent met de onderstaande stellingen van ‘helemaal mee oneens’ tot ‘helemaal mee eens’.**

	Helemaal mee oneens	Oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Helemaal mee eens
Als ik wil kan ik <u>de komende week</u> mijn alcoholconsumptie verminderen tot de aanbevelingen die genoemd zijn in het foldertje.	1	2	3	4	5	6	7
Ik kan geen obstakels bedenken die me ervan kunnen weerhouden mijn alcoholconsumptie te verminderen <u>in de komende week.</u>	1	2	3	4	5	6	7
Het zal voor mij makkelijk zijn mijn alcoholconsumptie te verminderen <u>in de komende week.</u>	1	2	3	4	5	6	7
Als ik wil kan ik <u>in de toekomst</u> mijn alcoholconsumptie verlagen tot de aanbevelingen die genoemd zijn in het foldertje.	1	2	3	4	5	6	7
Ik kan geen obstakels bedenken die me ervan kunnen weerhouden mijn alcoholconsumptie in te verminderen <u>in de toekomst.</u>	1	2	3	4	5	6	7
Het zal voor mij makkelijk zijn mijn alcoholconsumptie te verminderen <u>in de toekomst.</u>	1	2	3	4	5	6	7

Vraag 12: Geef aan in hoeverre je het eens bent met de volgende stellingen van ‘helemaal mee oneens’ tot ‘helemaal mee eens’.

	Helemaal mee oneens	Oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Helemaal mee eens
<b>Ik ben van plan mijn alcoholconsumptie <u>in de komende week</u> te verminderen.</b>	1	2	3	4	5	6	7
<b>Ik ben van plan mijn alcoholconsumptie te verminderen <u>tijdens de eerstvolgende gelegenheid waar alcoholische drankjes worden genuttigd.</u></b>	1	2	3	4	5	6	7
<b>Ik ben van plan <u>in de komende week</u> mijn alcoholconsumptie te verlagen tot de aanbevelingen in het foldertje.</b>	1	2	3	4	5	6	7
<b>Ik ben van plan mijn alcoholconsumptie <u>in de toekomst</u> te verlagen tot de aanbevelingen in het foldertje.</b>	1	2	3	4	5	6	7

**Vraag 13: Geef aan in hoeverre de volgende stelling op jou van toepassing is van ‘helemaal niet’ tot ‘heel erg veel’.**

	<b>Helemaal niet</b>	<b>Niet</b>	<b>Weinig</b>	<b>Neutraal</b>	<b>Een beetje</b>	<b>Veel</b>	<b>Heel erg veel</b>
<b>Ik ben aardig tegen mezelf wanneer ik ergens aan lijd.</b>	1	2	3	4	5	6	7
<b>Wanneer ik in een moeizame periode zit, dan geef ik mezelf de zorg en liefde die ik nodig heb.</b>	1	2	3	4	5	6	7
<b>Wanneer ik in een moeizame periode zit dan heb ik de neiging het mezelf zwaar te maken.</b>	1	2	3	4	5	6	7
<b>Ik sta kritisch en afkeurend tegenover mijn eigen fouten en onvolkomenheden.</b>	1	2	3	4	5	6	7
<b>Als ik me terneergeslagen en verdrietig voel, dan herinner ik mezelf eraan dat er op de wereld heel veel mensen zijn die zich net zo voelen als ik.</b>	1	2	3	4	5	6	7
<b>Wanneer dingen niet zo goed gaan, dan zie ik de moeilijkheden als een onderdeel van het leven die iedereen tegen komt.</b>	1	2	3	4	5	6	7
<b>Wanneer ik ergens in faal dat erg belangrijk voor mij is, dan voel ik mij eenzaam in het falen.</b>	1	2	3	4	5	6	7
<b>Wanneer ik erg aan het worstelen ben met moeilijkheden, dan denk ik dat andere mensen het vast makkelijker hebben dan ik.</b>	1	2	3	4	5	6	7
<b>Wanneer er iets pijnlijks gebeurt, dan probeer ik een gebalanceerd overzicht van de situatie te krijgen.</b>	1	2	3	4	5	6	7
<b>Wanneer ik ergens in faal dat erg belangrijk voor mij is, dan probeer ik alles in perspectief te zien.</b>	1	2	3	4	5	6	7
<b>Wanneer iets mij van mijn stuk brengt, dan wordt ik meegesleept in mijn gevoelens.</b>	1	2	3	4	5	6	7
<b>Wanneer er iets pijnlijks gebeurt, dan heb ik de neiging om de dingen buiten proportie op te blazen.</b>	1	2	3	4	5	6	7

➔ Volg de instructies op het scherm

**Vraag 14: Drink je wel eens alcohol?**

- Nee
- Ja

**Vraag 15: Op gemiddeld hoeveel dagen per week drink je alcohol?**

Op \_\_\_\_ dagen

**Vraag 16: Als je alcohol drinkt, hoeveel standaardglazen alcohol drink je dan gemiddeld per gelegenheid?**

\_\_\_\_\_ eenheid/eenheden

**Vraag 17: Wat is je geslacht?**

- Man
- Vrouw

**Vraag 18: Wat is je leeftijd?**

\_\_\_\_\_ jaar

**Vraag 19: Wat is je studieachtergrond?**

- Maatschappij en Economie
- Technologie en Voeding
- Biologie, Plant en Dieren
- Milieu en Landschap

**Dit is het einde van de vragenlijst. Bedankt voor het invullen! Over ongeveer een week ontvang je een tweede vragenlijst. Het invullen van deze vragenlijst duurt ongeveer 5 minuten. Na het invullen van deze tweede vragenlijst maak je kans op één van de 10 cadeaubonnen, ter waarde van €10.**

## Appendix 8: Item translation and references questionnaire 1

### Negative affect after negative event

These 8 items are adapted from Leary et al. (2007) by selecting those emotions that are relevant for this study: sad, dejected, down, depressed, nervous, tense, worried, and anxious.

1. *Droevig*
2. *Neerslachtig*
3. *Down*
4. *Depressief*
5. *Nerveus*
6. *Gespannen*
7. *Bezorgd*
8. *Angstig*

### Health-information check

These items were formulated after reading the leaflet and in such a way that it should be possible for the participants to answer the question correctly.

1. *Alcohol is een kankerverwekkende stof. Waar/Niet Waar/Weet ik niet.*
2. *Het drinken van alcohol kan ook gezondheidsvoordelen hebben. Waar/Niet Waar/Weet ik niet*
3. *Het aanbevolen dagelijkse limiet aan alcohol voor mannen is 3 eenheden per dag. Waar/Niet Waar/Weet ik niet*
4. *Het aanbevolen dagelijkse limiet aan alcohol voor vrouwen is 1 eenheid per dag. Waar/Niet Waar/Weet ik niet*

### Negative affect

These 20 items consist of the positive and negative PANAS subscale (PANAS-scale: Watson, Clark, & Tellegen, 1988): Afraid, attentive, nervous, proud, scared, strong, upset, active, guilty, alert, hostile, inspired, ashamed, excited, jittery, determined, irritable, interested, distressed, enthusiastic.

<i>11. bang</i>	<i>11. vijandig</i>
<i>12. oplettend</i>	<i>12. geïnspireerd</i>
<i>13. nerveus</i>	<i>13. beschaamd</i>
<i>14. trots</i>	<i>14. opgewonden</i>
<i>15. geschrokken</i>	<i>15. zenuwachtig</i>
<i>16. sterk</i>	<i>16. vastbesloten</i>
<i>17. ontstelt</i>	<i>17. prikkelbaar</i>
<i>18. actief</i>	<i>18. geïnteresseerd</i>
<i>19. schuldig</i>	<i>19. bekommerd</i>
<i>20. opgewekt</i>	<i>20. Enthousiast</i>

### Defensive avoidance and message derogation

The first item is adapted from Jessop et al. (2009) by making the defensive avoidance question relevant for this research.

- 1. Toen ik het foldertje las over alcohol en kanker, was mijn eerste reactie dat ik niet wilde nadenken over kanker.*

The following 4 items were adapted for Jessop et al. (2009) by making the message derogation questions relevant for this research.

- 2. Ik vind de informatie in het foldertje over het risico van alcohol op kanker overdreven.*



3. *Ik vind dat de informatie in het foldertje over het risico van alcohol op kanker mijn gevoelens manipuleert.*
5. *Ik vind dat de informatie in het foldertje over het risico van alcohol op kanker de werkelijkheid geweld aan doet.*
6. *Ik vind dat de informatie in het foldertje over het risico van alcohol op kanker wordt opgeblazen.*

The following item was added to see how people felt about the information leaflet.

4. *Ik vind de informatie in het foldertje over het risico van alcohol op kanker te beangstigend.*

### Attitude

The following items were selected from Caetano and Clark (1999).

1. *Dronken worden is leuk.*
2. *Een drankje op zijn tijd is één van de pleziertjes in het leven.*
3. *Drank kan het slechtste in de mens naar boven brengen.*

The last 5 items were formulated to cover the possible attitude of students.

4. *Alcohol maakt me ontspannen.*
5. *Alcohol maakt me meer extravert.*
6. *Alcohol brengt me in een goede stemming.*
7. *Alcohol drinken is iets positiefs.*
8. *Alcohol drinken heeft ook z'n negatieve kanten.*

### Self-efficacy

The self-efficacy items from Jessop et al. (2009) were adapted to match the goal of this research. Additionally, items were formulated to measure the self-efficacy of limiting alcohol

in general and limiting to the recommendations mentioned in the brochure (for a week and the future).

- 1. Als ik wil kan ik de komende week mijn alcohol consumpties verminderen tot de aanbevelingen die genoemd zijn in het foldertje.*
- 2. Ik kan geen obstakels bedenken die me ervan kunnen weerhouden mijn alcoholconsumptie te verminderen in de komende week.*
- 3. Het zal voor mij makkelijk zijn mijn alcohol consumptie te verminderen in de komende week.*
- 4. Als ik wil kan ik in de toekomst mijn alcoholconsumptie verlagen tot de aanbevelingen die in de informatiebrochure staan.*
- 5. Ik kan geen obstakels bedenken die me ervan kunnen weerhouden mijn alcoholconsumptie te verminderen in de toekomst.*
- 6. Het zal voor mij makkelijk zijn mijn alcoholconsumptie te verminderen in de toekomst.*

### Intention

The 4 items of the intention measure were adapted from Jessop et al. (2009) to match the purpose of this study. Additionally, different items were formulated to measure the intention in one week and in the future.

- 1. Ik ben van plan mijn alcoholconsumptie in de komende week te verminderen.*
- 2. Ik ben van plan mijn alcoholconsumptie te verminderen tijdens de eerst volgende gelegenheid waar alcoholisch drankjes worden genuttigd.*
- 3. Ik ben van plan in de komende week mijn alcoholconsumptie te verlagen tot de aanbevelingen in de brochure.*
- 4. Ik ben van plan mijn alcoholconsumptie in de toekomst te verlagen tot de aanbevelingen in de brochure.*

### Manipulation check

The selection of the items for this research is based on the relevance of the original items (Neff, 2003) for this specific research. The items selected represent a diversity of statements (i.e., statements that look quite identical are not both selected).

1. *Ik ben aardig tegen mezelf wanneer ik ergens aan lijd.*
2. *Wanneer ik in een moeizame periode zit, dan geef ik mezelf de zorg en liefde die ik nodig heb.*
3. *Wanneer ik in een moeizame periode zit dan heb ik de neiging het mezelf zwaar te maken.*
4. *Ik sta kritisch en afkeurend tegenover mijn eigen fouten en onvolkomenheden.*
5. *Als ik me terneergeslagen en verdrietig voel, dan herinner ik mezelf eraan dat er op de wereld heel veel mensen zijn die zich net zo voelen als ik.*
6. *Wanneer dingen niet zo goed gaan, dan zie ik de moeilijkheden als een onderdeel van het leven die iedereen tegen komt.*
7. *Wanneer ik ergens in faal dat erg belangrijk voor mij is, dan voel ik mij eenzaam in het falen.*
8. *Wanneer ik erg aan het worstelen ben met moeilijkheden, dan denk ik dat andere mensen het vast makkelijker hebben dan ik.*
9. *Wanneer er iets pijnlijks gebeurt, dan probeer ik een gebalanceerd overzicht van de situatie te krijgen.*
10. *Wanneer ik ergens in faal dat erg belangrijk voor mij is, dan probeer ik alles in perspectief te zien.*
11. *Wanneer iets mij van mijn stuk brengt, dan wordt ik meegesleept in mijn gevoelens.*
12. *Wanneer er iets pijnlijks gebeurt, dan heb ik de neiging om de dingen buiten proportie op te blazen.*

## Behaviour

The following items were formulated to measure the behaviour of the participants at baseline.

1. *Drink je alcohol? Ja/Nee*
2. *Op gemiddeld hoeveel dagen per week drink je alcohol? ..... dagen.*
3. *Als je alcohol drinkt, hoeveel standaardglazen alcohol drink je dan gemiddeld per gelegenheid? ..... glazen.*

## Appendix 9: Questionnaire 2

Je hebt ongeveer een week geleden deelgenomen aan een onderzoek met als onderwerp de relatie tussen alcohol en kanker. Deze enquête is het laatste onderdeel van dat onderzoek. Deze enquête duurt ongeveer 5 minuten.

Alle antwoorden zijn anoniem. Je wordt wel gevraagd een naam en e-mailadres in te vullen om alle gegevens die worden verzameld tijdens dit onderzoek bij elkaar te kunnen houden. Bij deelname krijg je een deelnemersnummer en zullen alle gegevens dus anoniem zijn en kunnen niet direct in verband gebracht worden met je naam.

Onder de deelnemers die deze digitale enquête hebben ingevuld, worden 10 cadeaubonnen ter waarde van €10 verloot.

Deze enquête mag digitaal worden ingevuld en vervolgens worden opgestuurd naar de onderzoeksassistente: [sabina.super@wur.nl](mailto:sabina.super@wur.nl)

Zorg er voor dat duidelijk zichtbaar is welk antwoord is aangekruist. Zie onderstaande voorbeeld van hoe de enquête ingevuld kan worden:

*Voorbeeld*

*Vraag 2: Geef aan in hoeverre je de volgende emoties voelt op dit moment van 'helemaal niet' tot 'heel erg'.*

	<i>Helemaal niet</i>	<i>Niet</i>	<i>Weinig</i>	<i>Neutraal</i>	<i>Een beetje</i>	<i>Veel</i>	<i>Heel erg veel</i>
<i>Droevig</i>	<i>1</i>	<i>2</i>	<i>3x</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>

Vul hier eerst je gegevens in:

**Naam:** \_\_\_\_\_

**E-mailadres:** \_\_\_\_\_

**Vraag 1: Geef aan in hoeverre de volgende stellingen op jou van toepassing zijn van ‘helemaal niet’ tot ‘heel erg veel’.**

	Helemaal niet	Niet	Weinig	Neutraal	Een beetje	Veel	Heel erg veel
In de afgelopen week heb ik met anderen gesproken over het filmpje en het experiment.	1	2	3	4	5	6	7
In de afgelopen week heb ik nagedacht over het filmpje en het experiment.	1	2	3	4	5	6	7
In de afgelopen week heb ik nagedacht over alcohol en het risico van alcohol op kanker.	1	2	3	4	5	6	7
In de afgelopen week heb ik met anderen gesproken over alcohol en het risico van alcohol op kanker.	1	2	3	4	5	6	7

**Vraag 2: Geef aan in hoeverre je het met de onderstaande stellingen eens bent van ‘helemaal oneens’ tot ‘helemaal mee eens’.**

	Helemaal mee oneens	Oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Helemaal mee eens
Dronken worden is leuk.	1	2	3	4	5	6	7
Een drankje op zijn tijd is één van de pleziertjes in het leven.	1	2	3	4	5	6	7
Drank kan het slechtste in de mens naar boven brengen.	1	2	3	4	5	6	7
Alcohol maakt me ontspannen.	1	2	3	4	5	6	7
Alcohol maakt me meer extravert.	1	2	3	4	5	6	7
Alcohol breng me in een goede stemming.	1	2	3	4	5	6	7
Alcohol drinken is iets positiefs.	1	2	3	4	5	6	7
Alcohol drinken heeft ook z'n negatieve kanten.	1	2	3	4	5	6	7

**Vraag 3: Geef aan in hoeverre de volgende stellingen op jou van toepassing zijn van ‘helemaal niet’ tot ‘heel erg veel’.**

	Helemaal niet	Niet	Weinig	Neutraal	Een beetje	Veel	Heel erg veel
In de afgelopen week heb ik mijn alcoholconsumptie verminderd.	1	2	3	4	5	6	7
In de afgelopen week heb ik mijn alcoholconsumptie verminderd tot de aanbevelingen die in het foldertje genoemd zijn*.	1	2	3	4	5	6	7

*\*De aanbeveling was 1 eenheid per dag voor vrouwen, en 2 eenheden per dag voor mannen*

**Vraag 4: Heb je in de afgelopen week alcohol gedronken?**

- nee
- ja

**Vraag 5: Hoe vaak heb je in de afgelopen week alcohol gedronken? (aantal gelegenheden).**

Op \_\_\_\_\_ gelegenheden.

**Vraag 6: Heb je tijdens één van de gelegenheden waar je alcohol hebt gedronken in de afgelopen week, je gehouden aan de aanbevelingen van 2 eenheden alcohol voor mannen en 1 eenheid voor vrouwen?**

- nee
- ja

**Vraag 7: Hoeveel eenheden alcohol heb je gemiddeld gedronken per gelegenheid?**

\_\_\_\_\_ Eenheden

**Vraag 8: Geef aan in hoeverre je het eens bent met de onderstaande stellingen van ‘helemaal mee oneens’ tot ‘helemaal mee eens’.**

	Helemaal mee oneens	Oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Helemaal mee eens
In de toekomst ben ik van plan mijn alcoholconsumptie te verminderen.	1	2	3	4	5	6	7
In de toekomst ben ik van plan mijn alcoholconsumptie te verlagen tot de aanbevelingen die gepresenteerd zijn in het foldertje*.	1	2	3	4	5	6	7
In de toekomst ben ik van plan het aantal gelegenheden waar ik alcohol drink te verminderen.	1	2	3	4	5	6	7
In de toekomst ben ik van plan de hoeveelheid alcohol die ik per gelegenheid drink te verminderen.	1	2	3	4	5	6	7
In de toekomst ben ik van plan mezelf te herinneren aan de gevaren van het drinken van alcohol op mijn gezondheid.	1	2	3	4	5	6	7

*\*De aanbeveling was 1 eenheid per dag voor vrouwen, en 2 eenheden per dag voor mannen*

Dit is het einde van de enquête. De ingevulde enquête kan opgestuurd worden naar [sabina.super@wur.nl](mailto:sabina.super@wur.nl)

Hartelijk dank voor het invullen!

## Appendix 10: Item translation and references questionnaire 2

### Control measure

The following statements were formulated to see whether participants have discussed the experiment.

1. *In de afgelopen week heb ik met anderen gesproken over het filmpje en het experiment.*
2. *In de afgelopen week heb ik nagedacht over het filmpje en het experiment.*
3. *In de afgelopen week heb ik nagedacht over alcohol en het risico van alcohol voor kanker.*
4. *In de afgelopen week heb ik met anderen gesproken over alcohol en het risico van alcohol voor kanker.*

### Attitude

The following items were selected from Caetano and Clarck (1999).

9. *Dronken worden is leuk.*
10. *Een drankje op zijn tijd is één van de pleziertjes in het leven.*
11. *Drank kan het slechtste in de mens naar boven brengen.*

The last 5 items were formulated to cover the possible attitude of students.

12. *Alcohol maakt me ontspannen.*
13. *Alcohol maakt me meer extravert.*
14. *Alcohol brengt me in een goede stemming.*
15. *Alcohol drinken is iets positiefs.*
16. *Alcohol drinken heeft ook z'n negatieve kanten.*



## Behaviour

The following statements were formulated to measure the behaviour of the participants in the previous week.

1. *In de afgelopen week heb ik mijn alcoholconsumptie verminderd.*
2. *In de afgelopen week heb ik mijn alcoholconsumptie verminderd tot de aanbevelingen die gepresenteerd zijn door de Gezondheidsraad. (De aanbeveling was 1 eenheid per dag voor vrouwen, en 2 eenheden per dag voor mannen)*

The following questions were added to get a measure of alcohol consumption.

1. *Heb je in de afgelopen week alcohol gedronken? Ja/Nee*
2. *Hoe vaak heb je in de afgelopen week alcohol gedronken? (aantal gelegenheden). Op .... Gelegenheden.*
3. *Heb je tijdens één van de gelegenheden waar je alcohol hebt gedronken in de afgelopen week, je gehouden aan de aanbevelingen van 2 eenheden alcohol voor mannen en 1 eenheid voor vrouwen? Ja/Nee*
4. *Hoeveel eenheden alcohol heb je gemiddeld gedronken per gelegenheid? .....*  
*Eenheden*

## Intention

The 4 items of the intention measure were adapted from Jessop et al. (2009) to match the purpose of this study.

1. *In de toekomst ben ik van plan mijn alcoholconsumptie te verminderen.*
2. *In de toekomst ben ik van plan mijn alcoholconsumptie te verlagen tot de aanbevelingen die gepresenteerd zijn in het foldertje.*
3. *In de toekomst ben ik van plan het aantal gelegenheden waar ik alcohol drink te verminderen.*

4. *In de toekomst ben ik van plan de hoeveelheid alcohol die ik per gelegenheid drink te verminderen.*
5. *In de toekomst ben ik van plan mezelf te herinneren aan de gevaren van het drinken van alcohol op mijn gezondheid.*

## Appendix 11: Debriefing

### Debriefing experiment 'Alcohol en Kanker'

In de afgelopen paar weken heb je twee enquêtes ingevuld, waarvan één tijdens een experiment op de universiteit en één thuis. Deze debriefing is bedoeld om uitleg te geven over het doel en de opzet van dit onderzoek en om eventuele vragen die zijn overgebleven te beantwoorden.

Tijdens het experiment werden de deelnemers in twee groepen verdeeld. Beide groepen hebben het zelfde filmpje gezien van een vrouw die vertelt over haar kankerdiagnose en hebben daarna een korte paragraaf geschreven over de hypothetische situatie dat ze kanker zouden hebben. Vervolgens zijn de groepen in tweeën verdeeld, waarbij één groep de zelfde situatie nog een keer moest beschrijven maar nu op een begripvolle en ongeëmotioneerde manier. De andere groep zat in een controleconditie en moest de reis van hun huis naar de campus beschrijven. Vervolgens hebben alle deelnemers een heleboel vragen beantwoord, na het lezen van een informatiefoldertje.

Het doel van dit onderzoek was om de invloed van zelf-mededogen (in het Engels: self-compassion) op gezondheidsgedrag te onderzoeken. De opdracht waarin mensen voor de tweede keer over kanker moesten schrijven, had tot doel dit zelf-mededogen op te wekken. Het idee achter dit zelf-mededogen is dat mensen daarna minder negatieve emoties ervaren en daardoor ook beter in staat zijn gezondheidsinformatie te verwerken en er uiteindelijk ook wat mee doen.

Om dit effect van zelf-mededogen op negatieve emoties te onderzoeken was het noodzakelijk eerst negatieve emoties op te wekken. Dit is gedaan door de deelnemers een filmpje te laten zien van een vrouw die kanker had en daarna te laten schrijven over de hypothetische situatie dat ze kanker zouden hebben. Het is mogelijk dat deze manier van emoties opwekken bij sommige deelnemers als onprettig of beangstigend werd ervaren. Mochten er opmerking of vragen zijn over het experiment, dan kan er contact worden opgenomen met de onderzoeker (zie contactgegevens onderaan deze brief).

De gegevens die verzameld zijn tijdens dit onderzoek zullen anoniem behandeld worden en nooit aan derden worden gegeven. Verder heeft alleen de onderzoeker toegang tot de ingevulde enquêtes en onderzoekgegevens.

Mocht je geïnteresseerd zijn in de uitkomsten van het onderzoek, of graag meer informatie willen over het onderzoek of het experiment, dan kun je contact opnemen met de onderzoeker. Mensen die graag meer willen weten over 'zelf-mededogen' kunnen kijken op <http://www.self-compassion.org/>. Op deze website vind je alle informatie over zelf-mededogen en kun je zelfs een test doen om te kijken hoeveel zelf-mededogen je hebt (een deel van deze test is opgenomen in het onderzoek).

Nogmaals bedankt voor het meedoen aan dit experiment!

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