The Influence of Affective States on Food Choice: Do Emotions of Corresponding Valence Have Corresponding Results?

A Comparison Between Guilt and Sadness

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Abstract

Emotions of similar valence may have distinct influences on decision making processes. Results from one survey-experiment show that, in food choice context, sad individuals choose differently than guilt-experiencing individuals. Individuals experiencing sadness have strong bias towards unhealthy food choices, whereas no such effect was found in guilt-experiencing individuals. This paper argues that due to the difference in goals developed when experiencing distinct emotions, emotions of similar valence can have differing influences on food choice. While sadness evokes the development of hedonic activity that is designed to distract or provide instant pleasure, guilt evokes compensatory actions designed to equate an individual’s mental imbalance. This paper provides first steps towards conclusive evidence that while guilt-experiencing individuals make considerably healthy food choices, sad individuals do not.
1. Introduction

Obesity and overweight levels in the world are shocking to say the least, with percentages between 35 and 50 percent of the European population being overweight and half a billion of the world’s population now considered to be overweight or obese (Rössner, 2002). Overeating as a result of unhealthy food choices has been acknowledged by many a researcher to be a main cause of obesity (Rössner, 2002). Overeating has several important drivers, one of which is lifestyle and the accompanying food choices people tend to make. Li et al. (2010) suggest that a lifestyle comprising of regular exercise and healthy food choice could reduce the effect of genetic predisposition on body weight by 40%. Lifestyle, and more specifically, food choice is found by many to be the main influence on health that is alterable (Centers for Disease Control and Prevention, 2011; Sun, 2008; Wardle et al., 2004).

A substantial part of overconsumption and its consequences on health is the excessive intake of high-calorie foods as a result of feeling negative emotions. Emotional eaters tend to be more emotionally reactive and are more likely to increase consumption under emotional stress (Macht, 2008; Zelner et al., 2006). These emotional eaters tend to eat more sweet, fatty foods during situations of negative emotion (Canetti et al., 2002; Ganley, 1989; Oliver et al. 2000). A person experiencing a negative emotion, say sadness, will either eat more of a food than he or she normally would, or choose a hedonically charged meal over a more nutritionally charged meal (Macht, 2008). The emotional drivers of unhealthy food choice have been subject to research for decades and the notion of negative emotions, influencing unhealthy food consumption among (emotional) eaters dominates research on the subject. Research has upheld the hypothesis that all negative emotions have negative influence on healthy food choice (Epel et al., 2001). This assumption might not be true entirely as a counter-argument has been developed which argues that all negative emotions do not necessarily influence choice in the same manner (Raghunathan & Tuan Pham, 1999). Several findings suggest that the “negative emotion increases unhealthy food consumption”-hypothesis does not necessarily hold for all negative emotions (see: Harmon-Jones et al., 2013; Lerner & Keltner, 2000; Raghunathan & Tuan Pham, 1999). The counter-argument to the hypothesis that all affective states from the same side of the valence-spectrum (good vs. bad) have the same influence on judgment, has been substantiated by several articles. Harmon-Jones et al. (2013) found that not all affective states of corresponding valence have the same outcome in cognitive processes. They found that the construct of amusement influences cognitive processes to have a broader cognitive scope, while the construct of desire caused a narrower cognitive scope (Harmon-Jones et al., 2013). Earlier, Lerner and Keltner (2000) also substantiated the counter-argument by showing that two negative affective states, fear and anger, have differing influences on judgment. They found that fear precedes a pessimistic view, whereas anger drives a person to have optimistic judgments of future events (Lerner & Keltner, 2000). As these two different emotions have different views on the future, they could precede different food choices as well. A fearful
person could choose a fatty food over a healthy option because of his need to balance out the negative view on future events by choosing the pleasant food alternative on the short term. Anger could, in turn, motivate a person to pursue the positive outcome of future events and prompt him to fuel himself with foods that have high nutritional value, resulting in a healthy food choice (Lerner & Keltner, 2000). Valence-based approaches to the influences of affective state on choice and behavior have been manifold and the field of research has been flourishing. Whereas knowledge about the link between emotion and choice has developed, articles pinpointing specific influences on choice following specific emotions are scarce (Lerner & Keltner, 2000; Raghunathan & Tuan Pham, 1999; Tracy & Robbins, 2004; Tangney et al., 2005). Although findings of contemporary research conclude that emotion influences food choice considerably, the effect of specific emotions on food choice has not been pinpointed well.

While there is still a lack of emotion-specific influences on food choice, further research is necessary to provide emotion-specific influences on food choice. Also, existing theory does not provide conclusive evidence in regard to emotions of the same valence having the same (or differing) influences on food choice. As such, this paper aims to provide more insight as to how specific emotions of the same valence influence food choices by answering the following research question: How do emotions of similar valence differ in their influence on food choice? The framework that shall be presented will, therefore, enhance our understanding of the effect of specific emotions on food choice.1

1.1 A Brief Overlook

To further substantiate the evidence that not all emotions of similar valence have the same results with concern to (dietary) choices, this paper investigates the effect of two emotions of similar valence on food choice and seeks to find differences between consequences of these emotions. The choice for emotions to include in the research is derived from existing theory and theoretical implications. The following provides a brief overlook of theory and concludes with the constructs that are included in the research.

The amount of articles researching the effect of negative versus positive emotions on choice is plentiful. For instance, Woodruff (1997) showed that emotion influences in-store shopping. In turn, Hetherington and MacDiarmid (1993) found that different emotions have different outcomes in the context of in-home dietary choice, using the valence-based approach. Likewise, and more recently, Garg, Wansink

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1 The concepts of emotion, mood and feeling are frequently and interchangeably used by academics when dealt with. To provide direction to the study and clarity for the reader of this paper: this research, like many other articles, separates the concept of mood from the other affect-related concepts of emotions and feelings. Moods are generally positive or negative, but are significantly more often vague than they are specific (Bower, 1981; Isen 1984; Raghunathan & Pham, 1999). One is either in a bad mood or in a good mood, but moods are seldom described more specifically. Moods are also non-specific in relation to their cause (Bower, 1981; Isen, 1984; Raghunathan & Pham, 1999). Generally, people cannot pinpoint a specific thought or situation that triggered their mood, which is what separates the concept from emotion and feelings. Emotions and feelings are generally for a reason that people can convey and are generally a reaction toward a specific target (Bower, 1981, 1991; Forgas et al., 1984; Isen, 1984). As such, emotion is the construct under investigation in this paper.
and Inman (2007) found that consumers in a sad state tend to overeat or at least have a larger chance of overeating than happy consumers.

However, to understand the influence of specific emotions on food choices, it would be wise to include a study on drivers of emotions and how they establish themselves in people’s minds. Pham et al. (2001) provide insight and a theoretical basis on which assumptions can be built that adhere to the topic at hand. Pham et al. (2001) found that affect-based, in comparison to reason-based, approaches to decision making, provide “…judgmental responses that are (a) potentially faster, (b) more stable and consistent across individuals, and importantly (c) more predictive of the number and valence of people’s thoughts.” (Pham et al., 2001). Thereby implicating that affect-based responses are of immense importance for anyone whose focus lies with strategies that affect decision making. Furthermore, the authors provide that judgments precede responses. Raghunathan & Pham (1999) argue that different emotional states from the same side of the valence-spectrum, could, latently, have differing goals. Therefore, there could be different influences on decision making per distinct emotional state (of similar valence) and, as a result, different outcomes on dietary choice.

This hypothesis shall be tested by exploring the effect of two affective states from the negative side of the valence spectrum due to the findings of previous research pointing out that positive affective states differ less than their negative counterparts (Ellsworth & Smith, 1988; Isen, 1984). Findings that would substantiate the hypothesis of differing influences between emotional states of corresponding valence would therefore, most likely, appear when investigating emotional states of negative valence. This paper focuses on sadness, as it is widely researched and is suggested to be one of two of the biggest negative affective states one can find himself in (the other being anger), and guilt. Unhealthy food choices are widely attributed to feelings of sadness among (emotional) eaters (Evers et al., 2010; Macht, 1999; Macht et al., 2002). To explain the seemingly unwise food choices as a result of sadness and to provide functional and biological explanation, authors on the subject theorize sadness to precede unhealthy food choice as a “… part of an attempt to escape from negative self-awareness” (Evers et al., 2010; Heatherton & Baumeister, 1991). The individual focusses attention away from the relevant cognition about the situation that has evoked sadness and focusses it towards eating. This allows the individual to bypass dealing with the situation that threatens the ego or the individual’s sense of security (Heatherton & Baumeister, 1991). Another perspective proposed by researchers is that unhealthy food choice could be the effect of the individual’s expectancy to extract pleasure out of the consumption of unhealthy foods (Evers et al., 2010; Lehman & Rodin, 1989). The pleasure is needed to remove the individual’s feelings of sadness (Lehman & Rodin, 1989). The construct of sadness would therefore be appropriate to use as it is found to be an antecedent of unhealthy food choices. To test the hypothesis of differing results between specific emotions of the same valence, the construct with which sadness is compared, should be one that is hypothesized to induce healthy food choices. The choice of guilt as a construct is due to the hypothesized result it could have concerning food choice. Ketelaar and Tung Au
(2003) found that as a result of compensatory thinking after feeling guilty, participants were more inclined to choose a good behavior over a bad. Their experiment showed that people feeling guilty after choosing to act non-cooperatively in a situation and thereby negatively influencing others, used their feelings of guilt as information when choosing a strategy in the second situation. The researchers found that people feeling guilty, acted cooperatively in the second situation to compensate for their choice in the first situation (Ketelaar & Tung Au, 2003). The authors found that feelings of guilt preceded a “good” choice and implicated that guilt could have the same effect in other choice situations. Applying their implications on choice of food, consumers could be more likely to choose the healthy food option when feeling guilty. Therefore, guilt as a construct is very much suited to the research at hand and is likely to aid in proving the differing outcomes of different emotional states of the same valence.

In conclusion, in order to provide an answer to the research question, the constructs of sadness and guilt are researched and their influence on food choice is investigated. Hypotheses are formulated and tested after theoretical due diligence. In the following pages a summary of existing theory on the constructs of sadness and guilt and their influences on food choice is presented. The overlook of existing theory is used as a basis for the formalization of the hypotheses that are tested later in the paper. Afterwards, the choice of research method is determined. Subsequent of the research, findings are presented and discussed, along with theoretical and practical implications as well as the limitations of the study.

2. Theoretical Framework

The constructs under investigation are sadness and guilt and their influence on decision making in regard to food choice. The following pages contain a summary of theory on these constructs that provides the basis through which the definitions of the constructs are formalized. First, the general theory about sadness is reviewed. Afterwards, this section interprets general theory and zooms in on the (theorized) effect the construct may have on food choice, by conveying the main theoretical arguments used to arrive at the hypothesis. Consequently, the same method is used to examine the construct of guilt. Thus, the investigation of existing theory also provides insight as to how influences of the constructs of sadness and guilt may differ. These theoretical implications are then used to formalize hypotheses that are tested in this research.

2.1 Defining Sadness

The definition of specific emotions has proven to be very difficult (Izard, 2009). Nevertheless, there has been a consensus about the definition of sadness for a while. It is a result of diligent research by appraisal theorists that define emotions as constructs that emerge from thoughts, feelings and expressions (Clore & Ortony, 1988, 2008, 2013). Although by assuming this view, one can infer that emotions could be a result of controlled cognitive processes, it is important to note that emotions and the generation of appraisals are
mostly performed automatically and non-controlled through affective schemata (Cohen & Areni, 1991; Leventhal, 1984). Ortony, Collins and Clore (1988) propose the OCC-Model which dictates that emotions are distinguished from one another by a person’s appraisals. Appraisals are, in the words of the authors: “… psychological aspects of situations that distinguish one emotion from another, rather than triggers that elicit emotion,” (Ortony, Collins & Clore, 1988). They provide the view that emotions are not triggered by appraisals or psychological processes, but are simultaneously developed with a person’s feelings about a situation. Appraisals are the building blocks of specific emotions, similar to the ingredients of a dish, and these appraisals differentiate emotions from one another.

Based upon the foundation, provided by the OCC-model, Smith and Lazarus (1993) identify sadness as an emotion that revolves around irrevocable loss and has four important appraisal components. It is/has: 1. Motivationally relevant, 2. Motivationally incongruent, 3. Low coping potential, and 4. Low future expectancy (1993). The authors state that sadness is an emotion that “… touches upon issues the person cares about”. Motivational relevance is about whether or not a person is detached from a situation or very concerned about a situation. In the case of the latter, a situation is motivationally relevant. Not only is a person concerned with the situation when he or she is sad, the feeling is also not congruent with the preferred motivational state. A person would rather be out of the emotional state. Sadness is also theorized to be an emotional state that results in low coping potential, making the person mentally unable to easily achieve the desired affective state. Furthermore, sadness results in a person’s low expectation of outcomes of future endeavors (Smith & Lazarus, 1993). Smith and Lazarus find that their measure of sadness is imperfect as they were not able to confirm that sadness entailed the appraisal of low coping potential. The notion that sadness occurs when irrevocable loss is experienced, either materially or immaterially², and that sadness is a state in which a person does not desire to find himself, could imply that a person would try to achieve a desired state by an action that fills the void that irrevocable loss left or an action that distracts the individual from the emotion of sadness. Multiple articles found that sadness evokes action that is designed to result in material or immaterial gains. For example, Bauman, Cialdini and Kenrick (1981) found that sadness prompted the research participants to help others. These actions provided the participants with immaterial gains of satisfaction and self-worth. In turn, Mick and Demoss (1990) found a common tendency with consumers to buy themselves gifts when they’re feeling sad, providing them with material gains (Mick & DeMoss, 1990). Taking these findings into account, this study assumes the proven definition of Smith and Lazarus (1993) on sadness and incorporates the linked appraisals. As such, sadness is a feeling of irrevocable loss that is motivationally relevant, incongruent, and evokes low future expectancy.

2.2 Influence of Sadness on Food Choice

²Clarification: A person can experience the loss of a watch (material/explicit), but can also experience the loss of hope (immortal/explicit).
Garg et al. (2007) found that when experiencing sadness, consumers tend to choose more hedonic foods than when feeling happy (Garg et al., 2007). Such behavior can be explained by using affect regulation theory proposed by Andrade (2005). He argued that when experiencing sadness, which is incongruent of the preferred emotional state, consumers look for mood-changing cues and behave in a way that will alter their emotional state or distract attention from it (Andrade, 2005). Gender differences may occur, as women are found to eat more chocolate when feeling sad (Macdiarmid et al., 1995), but healthy men consumed less chocolate when feeling sad (Macht et al., 2002). Both Macht et al. and Gibson (2006) attribute these gender differences to dispositional differences, stating that men and women may enjoy chocolate differently (Gibson, 2006; Macht et al., 2002). Sadness is theorized to evoke either, actions designed to distract the individual from the situation at hand which caused the emotion (Evers et al., 2010; Heatherton & Baumeister, 1991), or actions designed to experience (hedonic) pleasure to mitigate the feeling of sadness (Lehman & Rodin, 1989). Either of these designs facilitate unhealthy food choice. An easy way to both distract and experience hedonic pleasure is for a person to choose unhealthy foods. Research has found that “…the less healthy the item is portrayed to be, (1) the better is its inferred taste, (2) the more it is enjoyed during actual consumption, and (3) the greater is the preference for it in choice tasks when a hedonic goal is more (versus less) salient” (Raghunathan, Naylor & Hoyer, 2006). This implicates that when hedonic goals are developed and a person seeks pleasure-providing experiences, unhealthy food products are more likely to be chosen. Knowing that the emotional state of sadness evokes actions designed to experience hedonic pleasures (Andrade, 2005; Lehman & Rodin, 1989), and knowing that when hedonic goals are formulated a person is more likely to choose unhealthy food products (Raghunathan, Hoyer, & Naylor, 2006), the effect of sadness on food choice can be hypothesized to be negative. In other words, sadness experiencing individuals are theorized to be more likely to choose unhealthy foods. As such, sadness is argued to be of negative influence on food choice and would likely result in unhealthy food choices.

2.3 Defining Guilt

Guilt as a theoretical construct suffers the same problems as other emotions in the sense that it is difficult to formally define. However, it faces another challenge that not all other emotions face. Guilt has extensive overlap with shame and its establishment in the mind is sometimes very similar, which makes defining the construct all the more difficult. A central theme within the articles on guilt is the presence of remorse and the link to shame (Lewis, 1971; Lindsay-Hartz, 1984; Tangney et al., 2011; Teroni & Deonna, 2008). Lewis states that guilt cannot be without a sense of remorse, acknowledging the difference between shame and guilt, while failing to theoretically identify important distinctions (1971). It seems that the sense of guilt is very much linked to and overlapping with a sense of shame.

To come to a clear definition of guilt, the construct needs to be separated from shame conceptually.
To this end, the following paragraphs help define guilt as a construct by highlighting what it entails and underlining the conceptual differences it has with shame. Among others, Cohen et al. (2011) found that the constructs of guilt and shame are both “...characterized by feelings of distress arising in response to personal transgressions” (Baumeister, Stillwell & Heatherton, 1994; Smith et al, 2002; Wolf et al., 2010; Cohen et al., 2011). Although there is overlap between the constructs, two schools of thought have emerged that specify the differences between the constructs of shame and guilt from two different points of view. One group of scholars bases their understanding of the difference between guilt and shame on the self-behavior distinction and the other on the public-private distinction (Cohen et al., 2011). Both schools of thought use distinct criteria to identify guilt and serve as the foundation to many articles that are part of the academic landscape of emotion. As both schools of thought serve many academic articles that lie on the basis of contemporary knowledge on the concept of guilt, examination of these schools of thought is warranted.

2.4 Self-Behavior Distinction

According to authors assuming this point of view, shame and guilt can be differentiated from another on the grounds that shame is induced by the judgment of a person’s self and guilt is induced by the judgment of a specific behavior (Lewis, 1971; Tangney & Dearing, 2002; Tracy & Robbins, 2004). When shame is experienced people tend to question their entire character (“I’m a bad person”). It arises when a person attributes judgments about the entire self, which lead to the negative feelings about the person’s character (Tracy & Robbins, 2004). Contrastingly, people that experience guilt question their behavior that caused their feeling (“I did a bad thing”). They attribute judgments to an action and question their specific behavior as opposed to questioning their entire character (Tracy & Robbins, 2004). A study in 1995, conducted by Lindsay-Hartz and colleagues, also showed that guilt, as opposed to shame, is about a specific behavior. The researchers used in-depth interviews that guided participants to recall past personal experiences that led them to feel ashamed or guilty. Consecutively, the researchers asked in-depth questions to make the subjects better understand their emotions at the time which enabled them to recall their cognitions during and shortly after the emotional situations. The researchers then analyzed the interviews and found that guilt was felt about a specific situation, whereas shame revolved around the entire self (Lindsay-Hartz et al., 1995). Participants that felt guilty did not question their entire self in a way that people who felt ashamed did. To clarify: people feeling guilty questioned their action, whereas people that felt ashamed questioned their character. Shame revolves more around the question: “Am I a bad person?”

Another study by Niedenthal et al. (1994) entailed asking participants to describe shame- and guilt-inducing situations. Following their description the participants were asked about what they would do to undo the
situation. The authors found that participants phrased their answers behavior-based when they felt guilty and trait-based when they felt ashamed. Participants that felt guilty used wording like “If only I hadn’t done...”, whereas ashamed participants formulated their answers like “If only I wasn’t...” (Niedenthal et al., 1994).

The Test of Self-Conscious Affect-3, which is mostly used in assessment of guilt- and shame-proneness, was built on the self-behavior distinction (Tangney et al., 2000). In this test, the authors found that responses of guilt can be typified by “…regret and negative behavior-evaluations” (Cohen et al., 2011). Respondents feeling guilty formulate statements like “I made a mistake” and also show they want to repair their mistake by apologizing (Tangney et al., 2000). Wolf et al. (2010) found that the reliance of the self-behavior distinction of the TOSCA-3 had merit, as they manipulated the self-behavior distinction and found results that comply with the findings of the authors assuming this point of view (Wolf et al., 2010). Clearly, guilt is different than shame on the grounds that it is a result of a person’s judgment of a specific behavior.

### 2.5 Public-Private Distinction

Multiple other authors took a different point of view and focused on the difference between the nature of the situation – private vs. public. Benedict (1947) identified the difference between shame and guilt by stating that shame is a result of socially undesirable behavior, whereas guilt is induced by “…flouting private norms” (Benedict, 1947). According to Benedict (1947) guilt is more related to private transgressions that are not publically exposed, whereas shame occurs when transgressions are public. Philosophers (Harré, 1990; Williams, 1993; Wollheim, 1999) and psychologists alike (Ausubel, 1955; Crozier, 1998) have maintained the idea of shame and guilt being distinct from one another on the grounds of public versus personal judgment. A large cross-cultural study by Walbott and Scherer (1995) proved this distinction (public vs. private judgment) between the constructs. They asked participants to ascribe their personal experiences of the emotions to either internal or external variables. Guilt was significantly more linked with internal variables than shame (Walbott & Scherer, 1995). Fontaine et al. (2006) found similar results. Guilt is associated with the private impression of wrong-doing. In contrast, shame occurs when the wrong action is publically exposed.

The Dimensions of Conscience Questionnaire (DCQ; Johnson et al., 1987) is based on the public-private distinction. This questionnaire uses items that measure guilt by asking respondents how poorly they would feel after committing private transgressions. The shame items ask similar questions about public transgressions (Cohen et al., 2011). Wolf et al. (2010) found a surprisingly high correlation between the TOSCA-3 and DCQ results (.62 for guilt and .38 for shame). This correlation is remarkable, considering the fundamentally different points of view the questionnaires were based on. As such, Cohen et al. (2011) argue
that both points of view need to be taken into account and a questionnaire assuming the merits of both schools of thought should be developed. Subsequently, they develop a scale that takes into account both points of view with which they measure guilt-shame proneness in a scenario-based manner, called the GASP-scale (Guilt and Shame Proneness Scale; Cohen et al., 2011). The GASP-scale incorporates findings of the discussed points of view on the differences between shame and guilt which both have empirical support. As they find very reliable results in the GASP’s ability to assess guilt proneness, this study assumes the definition of guilt as used by Cohen et al. (2011) by adopting both the self-behavior distinction as the public-private distinction. As such, guilt is defined as a feeling of distress arising in response to personal, private transgressions, which is incited by the person’s judgment of a specific behavior.

2.6 Influence of Guilt on Food Choice

Guilt facilitates actions that are positive to mitigate the feeling about a previous action that evoked the individual’s feelings of guilt (Tangney et al., 2000). Individuals experiencing guilt judge an action to be ‘wrong’ and feel that said behavior symbolized a (momentary) departure from personal standards and values. As a consequence, guilt leads to a person assessing himself as deficient on at least one aspect of his norms (Izard, 1977). The feelings of remorse and responsibility to repair or compensate that arise as a consequence, could move an individual towards good actions (Izard, 1977; Huhmann & Brotherton, 1997; Boudewyns, Turner & Paquin, 2013). Evidence suggests guilt could facilitate good choices. For instance, guilt is shown to evoke cooperative behavior when given the chance (Boster et al., 1999; Ketelaar & Au, 2003). Also, Dearing et al. (2005) found that guilt precedes an avoidance of risky behaviors like binge drinking (Dearing, Stuewig & Tangney, 2005). The basis of this effect lies in the underlying goals individuals formulate when feeling guilty. As opposed to sad individuals who formulate hedonic goals and seek short-term pleasures that distract, guilty individuals seek opportunities to repair the imbalance between personal beliefs and actual behavior. Thus, guilty individuals are more likely to seek and exhibit good behaviors. As such, in a food choice context it can be inferred that guilt could precede better choices, thus affecting food choice positively. In other words, guilt experiencing individuals are more likely to exhibit healthy choices.

To summarize, building on academic work on emotional influences on choice (e.g., Raghunathan & Pham, 1999; Schwarz, 1990; Raghunathan, Naylor & Hoyer, 2006) and on the cognitive structure of emotions (e.g., Lazarus, 1991; Roseman, 1991; Tracy, Robins, & Tangney, 2007), this research argues that sadness and guilt have different effects on food choice. While sadness elicits pleasure-seeking and, therefore, is more likely to result in unhealthy food choice, guilt evokes compensatory thinking and the search for opportunities to repair which is hypothesized to be more likely to result in healthy food choices. This difference in effect is hypothesized to be due to underlying goal definitions by individuals. Sadness evokes hedonic choice, while guilt elicits compensatory thinking and subsequent compensatory choice. Although
these emotions are of similar valence, they elicit different underlying goals which is why this research hypothesizes different effects on food choice, thereby challenging the assertion that all negative emotions have the same effect on choice.

2.7 Conceptual Framework and Hypotheses

To further clarify the previous chapters, a conceptual framework is drawn that is tested. The following framework is subject to this research paper.

The affective states of *sadness* and *guilt* are hypothesized to have effect on food choice. Food choice as the dependent variable entails categorical factors *hedonic* and *healthy*. In this paper, hedonic food choice is regarded as the bad food choice (−) and a healthy food choice is regarded to be good (+). Sadness as a construct is hypothesized to have negative effect on food choice and will, therefore, result in relatively bad food choice. In turn, guilt is hypothesized to have positive effect on food choice. As such, the following hypotheses are formulated and tested:

H1: Guilt and sadness have differing influences on food choice.

H2: Sadness has a negative influence on food choice.

H3: Guilt has a positive influence on food choice.

3. Methodology
This section of the text includes the strategy used to investigate the constructs and their influence on food choice. It entails the methodology chosen, operationalization of constructs, a summary of a pre-test and its results, as well as the methods used during both the pre-test and main study. A description of population samples used for both tests and the summary of analytical tests used, are also part of this chapter.

3.1 Research Strategy

To test the formulated hypotheses a survey experiment was designed on the basis of the articles by Raghunathan and Pham (1999) and Keltner et al., (1993), through which participants were manipulated to experience the constructs of either sadness, neutral, or guilt. The experimental design was chosen after acknowledging the findings of Raghunatham and Pham (1999) and Keltner et al. (1993), who were able to come to significant findings on the effects of emotions on choice after manipulating participants during their experiments. This research was designed to have two parts. The first part served to evoke the emotions under investigation which is in line with the designs used multiple times by Raghunathan & Pham (1999, 2006a, 2006b). It entailed an introduction that was designed to enhance participants’ engagement with the scenario they were about to read, by conveying that empathic people are generally more successful in life. Next, they were presented with three demographical questions. Afterwards, one of three possible scenarios was presented (a guilty-, sadness- or neutral-scenario) and participants were urged to place themselves in the scenario, as if they were the protagonist in the story. The second part of the experiment was based on research by Gardner et al. (2014), who measured food choice as a result of positive and negative affective state. The second part consisted of seven choices between hedonic and healthy meals/snacks. Participants were asked to choose either the hedonic or the healthy option. After the seven choices, participants were thanked and the experiment ended.

3.2 Operationalization of Concepts

To evoke the feelings of sadness and guilt two scenarios were chosen from existing literature, that have proven their reliability in evoking the feelings of sadness and guilt. Firstly, guilt is manipulated by the “guilt-scenario” from Niedenthal et al. (1994), which is a frequently used and reliable scenario to evoke guilt (Tracy, Robins & Tangney, 2007). The scenario was developed using the reactions of over one hundred undergraduates from John Hopkins University. The undergraduates rated four scenarios on their ability to evoke guilt. This study uses the scenario that evoked the highest guilt-score (5.7 on a scale from 1-7; Niedenthal et al., 1994). The scenario is quite short and reads:

4 A participant that filled in the guilt-survey would not fill in a sadness-survey to prevent dilution of the manipulation effect.
5 The emotions under investigation were: sadness and anxiety (for the article by Raghunathan & Pham, 1999), and sadness and anger (for the article of Keltner et al., 1993).
You are house-sitting for a friend’s parents. It’s a pretty easy task, actually. All you have to do is eat their food and collect the mail, and feed their bird. Everything is going just fine until one morning you discover that the bird died during the night. You turned the air-conditioning on ‘high’ during the day and forgot to turn it down at night as you had been instructed. The bird died from the excessive cold.

The scenario was translated into Dutch, for the respondents were from the Netherlands. Also, according to leading authors on emotion, the manipulation of guilt could be more successful when the scenario exhibits a transgression that has a high moral value (Tracy, Robins & Tangney, 2007). In other words, guilt can more effectively be evoked when the transgression is one that is important to the respondent. For that reason, the scenario is altered slightly to increase the respondents’ engagement with the scenario. The scenario is altered by replacing “a friend’s parents” with “your best friend’s parents”, as the feeling of guilt is theorized to have a relational component—one feels more guilty when one’s actions harm another person (Tracy, Robins, & Tangney, 2007). Through logical reasoning it can be assumed that when that person is important to the transgressor, a feeling of guilt is more likely to develop. Also, the relationship of the bird to its owners is underlined by adding that the bird has become a real family member and is very important to the best friend’s father. By emphasizing the importance of the bird to the family, the participants’ development of guilt is more likely.

The construct of sadness was manipulated through the use of a slightly altered version of the scenario by Raghunathan and Pham (1999, 2006). The authors were able to manipulate the feeling of sadness multiple times (1999; 2006a, 2006b) with over a total of 400 respondents. It reads:

“It is nearing the end of the spring semester and you are really looking forward to the summer break. The semester has been a little hectic, and you are happy that you will have some time relaxing with your family. The Sunday two weeks before finals week you get up early to catch up on your courses. You are in the shower thinking about what you will study when your roommate pulls you out of the shower, telling you you have a phone call from your sibling. The minute you talk to your sister (brother) you know by her (his) strained voice that something is wrong. She (he) tell you that your mom is sick in the hospital, and that they don’t know what it is. Without finding out more you say you’ll fly back there immediately.

The flight home is confusing, and you feel dizzy in trying to come to some understanding of what is happening. You constantly reassure yourself that your mom is OK and that it is nothing serious. Funnily, it seems as though people on the plane sense your distress and act sympathetically toward you.

Upon arrival you quickly take a cab to the hospital and once there you find your mom’s room. Upon entering your mom’s room, you see the rest of your family there with their pale drained faces and teary eyes. They are huddled around your mom, who looks weakened and frail, with yellowed skin. You are overwhelmed by how much you love your mom and how pained she looks.

You go to your mom’s bed and kneel beside her, hold her legs. Her face rocks semi-consciously, flinching from time to time, and sometimes whimpering at the pain in her body. She looks up at you and the rest of the family, seeming to cry and smile.
at the same time. She raises her arms a little under the sheets as if to reach out to you and says “you’re all here”. “Of course we are” you reply and then she says, somewhat hesitantly, “It is sort of strange being in this place, isn’t it”? You all reassure her that she’ll be all right, but she closes her eyes and tells you that she feels like she is spinning around. She then closes her eyes and dies.”

The research also included a neutral scenario to be able to compare the effects of the guilt and sadness scenarios with a control group. The scenario that was used was taken from Raghunathan and Pham (1999) in which the respondent reads a five paragraph-long recollection of a common day in the life of someone who encounters several old friends during a night out (scenario can be found in the appendix).

The scenarios that were selected to elicit sadness and guilt differ significantly in length. As a consequence, individuals assigned to the guilt-scenario are exposed to the manipulation significantly less. A result of the significantly less time of exposure to a manipulation could be that the data set fails the manipulation checks, which would mean that we cannot be certain of a successful manipulation of both emotions. Also, it could also result in the comparison between the sadness-group and guilt-group being faulty which influences reliability and validity of the measurement negatively. Differences in outcomes may just be a result of the length of time spent on the survey experiment. To control for this, the participants were asked to find a secluded spot when filling in the survey experiment and spend approximately five to ten minutes on filling in the survey. By informing participants of the time they’re expected to spend on completing the test, a minimal duration of the tests (more than five minutes) is ensured. As a result, participants spend at least five minutes on the survey, which makes the amount of time exposed to the manipulation enough to compare the two groups.

After the manipulation of either one of the emotions, food choice was measured using a variation of the method by Gardner et al. (2014). This measurement relied on multiple proven ways of assessing food choice and the authors were able to find significant results (Gardner et al., 2014). The participants in that study were shown six pictures of foods (three healthy and three hedonic, randomly ordered) and were asked to score the foods on a scale from 1-7 ranging from “would not like to eat” to “would very much like to eat”. This study uses a variation of the method used by Gardner et al. (2014) and pits the healthy choices against the unhealthy food choices in a “A versus B”-format, like during Gardner et al.’s second study (2014). The participant made seven choices during which he chose between a healthy and an unhealthy food product. The choices were presented by showing two pictures next to each other, one of a healthy meal or snack and one that was unhealthy. The meals were similar to one another in the sense that they are mostly eaten on the same moments of the day to ensure validity of the measurement. For example, one question prompted the participant to choose between a bowl of spaghetti with fish (and vegetables) and a hamburger with fries. These meals are mostly eaten at the same moment of the day and are likely to be within a
participant’s choice set when deciding what is for dinner. When the choice is presented between a chocolate bar and a bowl of spaghetti, participants could choose the bowl of spaghetti because they feel hungry at the moment, which would ruin the validity of the measurement. To prevent such errors from appearing, the seven choices that measure food choice each entail one healthy and one unhealthy alternative which are both likely to be in the same participants’ choice set in real life.

3.3 Pre-Test

Given the hypothesized effects of sadness and guilt on food choice, the ability to evoke these constructs independently during the experiment is of utmost importance. To that end, a pre-test was conducted that was designed to test whether manipulation of the distinct constructs could be achieved via the scenarios that were chosen. The pre-test was structured after those used by Keltner et al. (1993) and Raghunathan and Pham (1999). After examination of the literature, three scenarios were selected that had proven to be effective in manipulating the constructs (from articles by Raghunathan and Pham, 1999; and Niedenthal et al., 1994). To be sure of their effect, these scenarios were subject to a pre-test.

3.4 Pre-Test Method

Seventy-seven students at Radboud University in Nijmegen volunteered to be a part of the pre-test, not knowing what it entailed. They were randomly assigned to one of the three conditions: guilt, sadness, neutral. The study was conducted in a setting of the participants’ choosing, as each participant was sent a link that entailed the online questionnaire which included the randomly assigned manipulation scenario. Participants were instructed to find a secluded area in which they felt relaxed and would be able to concentrate for five to ten minutes.

The participants entered the pre-test during which they were informed about the survey they were about to fill in, consequently answered demographic questions and were provided with one of the three randomly assigned scenarios. To ensure high involvement of the participants, the information-sheet they were shown consisted of information about empathic individuals being better friends and are mostly successful in life, as per Raghunathan and Pham (1999). The ‘information-sheet’ read: “Dear participant, thank you for your interest in this research on empathy. Earlier research has found that people that can project themselves in hypothetical situations well, have better chances of cultivating meaningful relationships. These people are emotionally intelligent, are good friends to have and have higher chances of succeeding in both family and business life. You will now be filling in a few demographic questions which are held anonymously and treated confidentially. Consequently, you will read a scenario and fill in your emotions on the scenario. This survey takes approximately between five and ten minutes.”
After reading the information sheet, participants were asked to read the scenario they were assigned to. After reading the scenario, the respondents filled in an adaptation of the PANAS-scale through which they rated emotion-items on a five-point Likert-scale, as the original PANAS-test also entailed measurement on a five-point Likert-scale (Watson et al., 1988). For example, the item of sad was rated on a scale from “I don’t feel” to “I feel very”, with the third choice being formulated as “I feel a little”. After rating the emotions on the assigned scenario, respondents completed the pre-test. The pre-test was written in Dutch, as the sample that was used consisted of Dutch individuals. The items were taken from the PANAS-scale (Watson et al., 1988). The scale was altered by adding the adjectives used in the mood-scale developed by Zevon and Tellegen (1982). This decision was made to increase the validity and reliability of the pre-test results. Also, the supplementary use of Zevon and Tellegen’s scale is warranted as it is the foundation on which the PANAS-scale was built (Watson et al., 1988; Tracy, Robins & Tangney, 2007). The PANAS-scale consists of 20 items. Several items that are in the original were dropped from the pre-test as they were irrelevant to this study (items like: enthusiastic, determined, inspired, etc.). Also, the items blameworthy and sad were added from the mood-scale (Zevon & Tellegen, 1982) to the PANAS item set to increase measurement of guilt and sadness respectively. As a result, there were two items that measured guilt (guilt and blameworthy) and two items that measured sadness (sad and blue) within an item set of 13. The items measuring guilt and sadness were composited to result in a guilt-score and a sadness-score which was used to assess the result of the manipulation.

3.5 Pre-Test Results

The pre-test showed that the scenarios were successful in eliciting the emotions of sadness and guilt.. As per Raghunatham and Pham (1999), a 2 (score-type) by 3 (emotion manipulation) mixed ANOVA was conducted—which treated the emotion scores as a repeated factor and the manipulation scenarios as the between subjects factor—to assess the difference in mean Sadness and Guilt scores. Individuals that read the sadness-scenario scored significantly higher on sadness (µ = 4.36, SD = .64) than individuals that read the neutral- (µ = 1.24, SD = .48), or guilt-scenario (µ = 2.24, SD = 1.16). As shown in the table below, the guilt scenario delivered a composite Guilt-score mean of 4.03 and a Sadness-score of 2.24. The sadness scenario elicited a mean Sadness-score of 4.36 and a Guilt-score of 1.3. These scores were all significant (p < .05).

<table>
<thead>
<tr>
<th>Emotion Manipulation</th>
<th>Pretest: Mean Sadness and Guilt Scores</th>
</tr>
</thead>
</table>

Table 1
<table>
<thead>
<tr>
<th></th>
<th>Sadness Scenario (n = 25)</th>
<th>Neutral Scenario (n = 25)</th>
<th>Guilt Scenario (n = 27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sadness score</td>
<td>4.36&lt;sup&gt;a&lt;/sup&gt; (SD = .64)</td>
<td>1.24&lt;sup&gt;a&lt;/sup&gt; (SD = .48)</td>
<td>2.24&lt;sup&gt;a&lt;/sup&gt; (SD = 1.16)</td>
</tr>
<tr>
<td>Guilt score</td>
<td>1.3&lt;sup&gt;a&lt;/sup&gt; (SD = .65)</td>
<td>1.22&lt;sup&gt;a&lt;/sup&gt; (SD = .48)</td>
<td>4.04&lt;sup&gt;a&lt;/sup&gt; (SD = .89)</td>
</tr>
</tbody>
</table>

The assumptions of normality of distribution and homogeneity of variance between the groups were violated as Levene’s test, as well as Brown-Forsythe and Welch statistics were returned significant and histogram plots of the standardized residuals per group showed few signs of normal distributions as did their skewness and kurtosis values. To ensure the validity of the scores that were found concerning the successful manipulation of the constructs, a Kruskal-Wallis test was conducted as it is shown to be robust in these types of situations (Field, 2014). The results show significant differences between both the Sadness-score as well as the Guilt-score. As such, the results suggest that manipulation of the constructs proved to be effective.

### 3.6 Main Study

As manipulation of the constructs via the selected scenarios proved to be effective, these scenarios can be used to manipulate participants into experiencing these emotions. As a result, food choice under a specific emotion can be measured, which serves the main objective of this study—to compare food choices between distinct negative emotions.

### 3.7 Method and Study Design

One-hundred-fifty people volunteered to participate in this study (75 men and 75 women). The participants were recruited from Radboud University in Nijmegen and the surrounding urban community by handing out web-links to the study, sending e-mails, distributing the link to the online survey experiment via social media and local networks. While a large amount of participants were from the student demographic, a substantial part of the participants were non-students (approximately 39%)<sup>7</sup>

The participants were randomly assigned to one of three scenarios: a sadness-eliciting scenario, a guilt-eliciting scenario or a neutral scenario. The survey was done via either a pc or mobile device to ensure a high participant response following the possibility of filling in the survey from the comfort of the

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<sup>a</sup> significance level of p < .05

<sup>7</sup> Approximately 70% of participants were between 18 and 25 years of age, 90% was younger than 35 years of age. Of the non-students approximately 40% were young professionals with less than three years’ experience.
participants’ choosing. Participants were asked to find a secluded spot in which they could fill in the survey without distractions for at least five minutes. Manipulation of sadness and guilt was done by providing a scenario, designed to either evoke sadness or guilt. As per Raghunathan and Pham (1999), participants were asked to try to experience the scenario as vividly as possible and place themselves in the context described by the scenario. To clarify: participants were randomly assigned to either a sadness-evoking scenario, a guilt-eliciting scenario or a neutral scenario to prevent dilution of the participants’ manipulated emotion. A survey comprising of multiple scenarios could cause survey-fatigue and therefore deliver unsatisfactory results. Respondents were primarily from the student-demographic. Similar to Raghunathan and Pham (1999) the same tactic that was used during the pre-test was deployed to elicit engagement of the respondents with the scenario they were about to read: before proceeding with the survey, participants were shown a message that was designed to enhance the participants’ engagement in the scenario they were about to read and place themselves in. It entailed fictive findings of earlier research that had allegedly found that people who can imagine themselves in a described context were more likely to have meaningful friendships and tend to be more successful in business and family life. This tactic was successfully used during multiple studies (Raghunathan & Pham, 1999, 2006a, 2006b).

Following the message about empathic people, participants were shown one of three scenarios through random assignment. The inducing of sadness was done using the slightly adjusted Raghunathan & Pham (1999) scenario, as they researched sadness through the use of a survey experiment and found their scenarios and measurement model to have the desired effect. Additionally, their data set comprised mostly of university students, which is very similar to the demographic behind the data set in this research. Clearly, their measurement model of sadness is appropriate in this context as well. Participants read a scenario wherein they receive bad news about their mother while at university. They rush home and find their mother in bed and witness her last moments. The concept of guilt was induced via the scenario formulated by Niedenthal et al. (2014), whereas the neutral-scenario was taken from Raghunathan and Pham (1999) as well. The guilt scenario describes a situation wherein the participant is asked to look after a best friend’s house and pet. The story includes a mistake made by the participant which leads to the death of the pet. The neutral scenario describes an evening out during which the protagonist meets old friends and reminisces about their times in high school.

Dissimilar to the pre-test, participants were not asked to indicate their feelings as previous studies have shown that such tactics are likely to decrease the effect of manipulated emotional states on decision making (Gorn et al., 1993; Keltner et al., 1993). Also, questions have been raised concerning the tactic of measuring emotional states to serve as a manipulation check, as that might cause steering of participants towards desirable states (e.g., Gorn et al., 1993; Raghunathan & Pham, 1999). When participants are not originally aware of their state, but are made aware by a set of questions that ask them about their feelings, it
affects their mental state. As a consequence they might answer following questions differently, had an emotion-check not been part of the study. Consecutively, results are not representative for real life situations, but are generally treated like they are (Gorn et al., 1993). Such tactics taint results and, as a consequence, jeopardize important aspects of academic research like validity and representativeness (Raghunathan & Pham, 1999). To prevent such tainting, this study does not use emotion-measurement as a manipulation check. Rather than a measurement of emotion, participants were presented with seven choices between two similar (same choice set) products.

Food choice was measured with seven hedonic and seven healthy options, which were presented in a ‘A. vs. B.’ choice. These options were all presented through the use of images of unbranded products to minimize possible brand evaluations which would taint the results and decrease validity of the study. The participant could either choose the healthy or the unhealthy option, as per Gardner et al. (2014). The participants answered seven of such questions. The choice was made in favor of multiple items to measure food choice to prevent issues concerning unforeseen distastes of food by participants. The choice for 14 items was made, because it facilitates proper analysis and, in turn, conclusive findings. Although Gardner et al. (2014) use fewer items (n=6), the addition of other items to the measurement will decrease the chance of measurement problems as a result of respondents’ distastes of certain foods. This would jeopardize the interpretation of results as food scores could be relatively low or high because of a participant’s distaste of a certain ingredient in the product that is presented. Using only three foods per subtype (hedonic versus healthy) could result in a high healthy score for a certain participant because of her distaste of coconut (which is used in many candy bars), for example. The same problem could occur the other way around. Also, whether or not a person is a vegetarian or vegan could affect the results in the same way, resulting in data that is tainted by participants’ predisposition towards certain ingredients or products. Using more items to measure food choice mitigates that effect and averts the risk of such problems. As a result, the three choices that were formulated during one of the studies by Gardner et al. (2014) are added to four other choices that are formulated (specifics can be found in the appendix), giving a total of seven questions comprising of fourteen options for the participants to choose from. To ensure all participants have the same experience during their survey experiment, all things are kept equal (including the sequence of food choices presented), except for the scenarios. After the seven questions, the participants were thanked for their participation and the survey ended (see Appendix B for an example of the survey experiment including images of food products used).

3.8 Data Analysis Strategy

After the data was collected, the mean scores of the groups were examined, as well as the dispersion to inspect whether deviation between the participants per group is present. Consequently, each participant
within the three groups (guilt vs. sadness vs. neutral) was scored on food choice and was given a ‘health-score’ between zero and seven. A participant who had preferred all healthy options scored a seven. To make analysis more useful, health scores were computed from the participants’ answers. Every healthy choice added one point to a possible health score of 0-7. A score of 0 was added every time participants chose unhealthy options. The higher the number, the more healthy choices were made by the participant. This enables the researcher to test the data set multiple ways, as it transforms the dependent variable from a categorical to an interval variable.

Before proceeding with tests that serve answering the hypotheses, manipulation checks are done to ensure that the intended effect of the scenarios was achieved. As an alternative to an emotion-measurement inside the survey, this study examines the results of multiple independent samples t-tests comparing answers on every food choice between the scenarios. The minimal criterion this study uses to acknowledge an effective manipulation check, is as follows: if more than two food choices in one group (guilt or sadness manipulation) differ significantly from the neutral manipulation, while the difference of food choices between the sadness and guilt groups prevails, the manipulation is deemed effective. The reason for this tactic instead of a more straightforward comparison of health scores, is that a difference between groups could still be present when composite health scores are similar.

Following the manipulation check, health scores are examined to see whether there are significant differences between the groups. A one-way analysis of variance is done – assuming the data assumptions are met. The sets of data are from separate groups of individuals while the predictor variable is of the categorical type and the dependent variable is continuous, which is why paired t-tests are inappropriate in this case (Field, 2009). As the Anova only tests whether there are differences between groups and does not indicate where those differences lie, a post-hoc test, either Tukey’s HSD or Games Howell depending on violation of the homogeneity assumption (Field, 2014), needs to be done to find the location of possible differences, as this research uses three scenarios. In case of violation of both assumptions for the normal distribution of the residuals and the homogeneity of variance, a Kruskal Wallis test is done as it provides a robust alternative to the Anova when assumptions of normality and homogeneity of variance aren’t met (Field, 2014). The result is a loss of statistical power, but a robustness towards a data set that violates certain assumptions that are pivotal for the warranted use of parametric tests. As a result, the hypotheses can either be accepted or rejected and an answer to the central question can be formulated.

4. Results
This section discusses the results of the main study. Before proceeding with the main effects, the text provides the manipulation checks. The study counted one-hundred-fifty individuals who were all able to complete the survey experiment. There were five outliers in the group of individuals who read the neutral scenario, but because of the mean of the outliers being almost identical to the mean of the neutral group the outliers weren’t excluded from the data set.

4.1 Manipulation Checks

As stated earlier, the criterion this study uses to deem manipulations effective is that there should be more than two significant differences between groups within the seven food choices. In the independent samples t-tests between the sadness and neutral groups, we find that there are significant differences between the groups at three food choices. The answers to questions 3 (t = -2.138, p<.05), 4 (t = -3.176, p<.01), 5 (t = -4.068, p<.001), and 6 (t = -2.456, p<.05) are significantly different, which indicates that manipulation of sadness was effective. A similar comparison of the guilt group and neutral group shows only one significant difference between the groups at question 7 (t = 2.138, p<.05). This may indicate that manipulation of guilt was ineffective. The analysis of the data should therefore be interpreted carefully and cautiously, it should also contain the notion that results may not have been because of the manipulation of guilt. Finally, a comparison between the groups of guilt and sadness was also conducted. Without such a comparison, assuming the manipulations to be unequivocally effective would be wrong, as there is no proof that the answers of the sadness group differ from the answers of the guilt-group. The independent samples t-test shows that questions 1 (t = -2.694, p=.01), 4 (t = -3.467, p<.01), 5 (t = -3.823, p<.001), 6 (t = -4.075, p<.001) and 7 (t = -3.646, p<.001) are answered differently by the participants of one group compared to the other. As a result of these checks we can assume that sadness was successfully manipulated, while there is a chance that the manipulation of either guilt or neutral emotional states (or both) was unsuccessful.

4.2 Main Effects

The overall health score, which can be seen in table 2, seemed to skew towards healthy choices (µ = 4.10) across conditions, indicating a tendency of the participants to choose more healthy than unhealthy products. There was no significant difference between health scores of males and females (µ = 4.17 for males; µ = 4.03 for females).

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8 A more detailed sample description is formulated in the methodology-section
9 Question 1: Hamburger or Spaghetti
Question 2: Strawberries or Chocolate
Question 3: Avocado Salad or Pizza Slice
Question 4: Cola or Water
Question 5: Candy bar or Granola bar
Question 6: Rice Cakes or Potato Chips
Question 7: Cookie or Apple
Table 2
General Descriptives

<table>
<thead>
<tr>
<th>HealthScore Statistics</th>
<th>Overall</th>
<th>Men</th>
<th>Women</th>
<th>Sadness</th>
<th>Guilt</th>
<th>Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>150</td>
<td>75</td>
<td>75</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Valid</td>
<td>75</td>
<td>75</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean</td>
<td>4.10</td>
<td>4.17</td>
<td>4.03</td>
<td>3.02</td>
<td>4.82</td>
<td>4.46</td>
</tr>
<tr>
<td>Std. Error of Mean</td>
<td>0.127</td>
<td>0.185</td>
<td>0.175</td>
<td>0.226</td>
<td>0.161</td>
<td>0.183</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1.558</td>
<td>1.606</td>
<td>1.515</td>
<td>1.597</td>
<td>1.137</td>
<td>1.297</td>
</tr>
<tr>
<td>Variance</td>
<td>2.426</td>
<td>2.579</td>
<td>2.295</td>
<td>2.55</td>
<td>1.293</td>
<td>1.682</td>
</tr>
</tbody>
</table>

Within all choice possibilities, water as opposed to a cola beverage was preferred most, with 113 participants ($\mu = .81^{10}$) preferring the glass of water, as shown in table 3. As opposed to all other choice sets, between the choice of a hamburger and a bowl of spaghetti with vegetables, most of the participants chose the unhealthy food product ($\mu = .42$). The other choice sets generated relatively healthy scores (between $\mu = .55$ and $\mu = .75$). The absence of significant differences between genders held on all individual choice sets, but one. Males preferred the hamburger over the bowl of spaghetti significantly more than females (health scores of $\mu = .33$ for males and $\mu = .51$ for females, $t = -2.710$, $p < .05$).

Table 3
Group Statistics

<table>
<thead>
<tr>
<th>Choice</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HamburgerSpaghet</td>
<td>Male</td>
<td>75</td>
<td>0.33</td>
<td>0.475</td>
<td>0.055</td>
<td>0.032</td>
</tr>
<tr>
<td>(µ = .42)</td>
<td>Female</td>
<td>75</td>
<td>0.51</td>
<td>0.503</td>
<td>0.058</td>
<td>0.869</td>
</tr>
<tr>
<td>StrawChocolate</td>
<td>Male</td>
<td>75</td>
<td>0.60</td>
<td>0.493</td>
<td>0.057</td>
<td>0.864</td>
</tr>
<tr>
<td>(µ = .59)</td>
<td>Female</td>
<td>75</td>
<td>0.59</td>
<td>0.496</td>
<td>0.057</td>
<td></td>
</tr>
<tr>
<td>AvocadoPizza</td>
<td>Male</td>
<td>75</td>
<td>0.65</td>
<td>0.479</td>
<td>0.055</td>
<td>0.864</td>
</tr>
<tr>
<td>(µ = .66)</td>
<td>Female</td>
<td>75</td>
<td>0.67</td>
<td>0.475</td>
<td>0.055</td>
<td></td>
</tr>
<tr>
<td>ColaWater</td>
<td>Male</td>
<td>75</td>
<td>0.81</td>
<td>0.392</td>
<td>0.045</td>
<td>0.089</td>
</tr>
<tr>
<td>(µ = .75)</td>
<td>Female</td>
<td>75</td>
<td>0.69</td>
<td>0.464</td>
<td>0.054</td>
<td></td>
</tr>
<tr>
<td>CandyGranola</td>
<td>Male</td>
<td>75</td>
<td>0.59</td>
<td>0.496</td>
<td>0.057</td>
<td></td>
</tr>
<tr>
<td>(µ = .55)</td>
<td>Female</td>
<td>75</td>
<td>0.51</td>
<td>0.503</td>
<td>0.058</td>
<td>0.328</td>
</tr>
<tr>
<td>RiceChips</td>
<td>Male</td>
<td>75</td>
<td>0.57</td>
<td>0.498</td>
<td>0.057</td>
<td></td>
</tr>
<tr>
<td>(µ = .55)</td>
<td>Female</td>
<td>75</td>
<td>0.52</td>
<td>0.503</td>
<td>0.058</td>
<td>0.515</td>
</tr>
<tr>
<td>CookieApple</td>
<td>Male</td>
<td>75</td>
<td>0.61</td>
<td>0.490</td>
<td>0.057</td>
<td></td>
</tr>
<tr>
<td>(µ = .58)</td>
<td>Female</td>
<td>75</td>
<td>0.55</td>
<td>0.501</td>
<td>0.058</td>
<td>0.412</td>
</tr>
</tbody>
</table>

The health scores as a result of the scenarios were submitted into a Kruskal-Wallis test which yielded significant results. The omnibus Kruskal-Wallis H test showed that there was a statistically significant

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10 Recall that choices were scored 1 for a healthy and 0 for an unhealthy choice.
difference in health scores between the different scenarios ($H = 36.270, p < .05$). Post-Hoc test showed that the significant differences were between the sadness- and guilt-group, as well as between the sadness- and neutral-group. There was no significant difference in variance between the guilt- and neutral-group. Table 4 shows the main findings of the research.

Table 4
Mean Health Scores and Standard Deviations

<table>
<thead>
<tr>
<th>Emotion Manipulation</th>
<th>Sadness Scenario (n = 50)</th>
<th>Guilt Scenario (n = 50)</th>
<th>Neutral Scenario (n = 50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health score</td>
<td>3.02$^{abc}$ (SD = 1.597)</td>
<td>4.82$^a$ (SD = 1.137)</td>
<td>4.46$^a$ (SD = 1.297)</td>
</tr>
</tbody>
</table>

Note: Superscripts a, b and c indicate the significant differences between the scenarios of sadness, guilt and neutral, respectively. For example, sadness scores are significantly different from both b (Guilt) and c (Neutral).

tests, were $p = 0.000$, $p = 0.000$ and $p = 0.566$, respectively. As shown in table 3, means differed between the groups significantly. Health scores from the sadness group differed significantly from both the neutral and guilt group, while the guilt group and neutral group were not found to differ significantly from each other. The participants in the sadness group had significantly lower health scores than the guilt group ($\mu = 3.02$, $\mu = 4.82$). The sad individuals chose unhealthy foods significantly more than the guilty individuals. According to this data set, sad individuals choose, in general, four unhealthy foods (out of a possible seven), whereas guilt-experiencing individuals choose two unhealthy foods. When compared to the neutral group, results are very similar. Sadness, it seems, precedes more unhealthy food choices when compared to neutral and guilt-feeling individuals. An interesting finding is that there was no significant difference between the neutral and guilty group. In general, the neutral group made fairly healthy food choices scoring a 4.5 out of a possible 7.

5. Discussion

As stated in the introduction and throughout this paper, the main assertion that is present amongst theorists concerning influences of emotions on food choice, describes that emotions of similar valence have

\[11\]
similar influence on choice (Ganley, 1989; Epel et al., 2001; Macht, 2008). This study’s aim was to enhance the understanding of specific influences of specific emotions on choice. By examining the differences between the emotions of sadness and guilt in a food choice context, the main assertion present in existing theory of influences of emotions on choice was tested. The results of this research indicate that sadness and guilt have different influences on food choice.

The hypothesized effect of sadness on food choice was confirmed by the results. Sadness experiencing participants had relatively low health scores, thereby corroborating the findings of multiple studies in this context (Hetherington & MacDiarmid, 1993; Garg et al., 2007). Comparing the health scores between the tested groups showed that, participants who read the sadness-scenario chose significantly fewer healthy products than participants from the guilt group. This indicates that an extension of the current body of knowledge on influences of emotions on food choice may be needed, as the valence-based view of emotions of similar valence having similar results on food choice (Canetti et al., 2002; Epel et al., 2001), does not hold. This finding is unsurprising as studies in the field of emotional influences on choice had already presented evidence that not all negative emotions should be treated the same (Raghunathan & Pham, 1999). The results of this study show that the assertion made by Raghunathan and Pham (1999) can be extended to emotional influences on food choice, as well.

Guilt was hypothesized to have a different effect on food choice compared to sadness. As stated earlier, the results support that train of thought. Also, guilt was hypothesized to have a positive influence on food choice. In this case, the results show that compared to sadness, guilt has a healthy influence on food choice, although that may not be the best way to categorize guilt’s influence on food choice. Stating that guilt influences food choice, suggests that there should be different food choices between guilt-experiencing individuals and individuals who are in a neutral state of mind. The results of this study show that, that is not the case. There are no significant differences between the guilt and neutral groups, which may indicate that guilt has no influence on food choice. That assumption may be too far a leap, as this data set doesn’t provide a look into participants’ train of thought and decision making processes when the food choice was made. A data set consisting of neurological information or one consisting of self-reported trains of thought would be needed to test whether guilt and a neutral state have differing influence on decision making processes. This data set has no such information. However, the results show that guilt-experiencing individuals have similar health scores compared to neutral participants. Therefore, the assumption that guilt and neutral emotions result in similar health scores can be made. This does not mean that guilt has no influence on the decision making processes that precede food choice and the resulting health score. Ketelaar and Tung Au (2003) found that guilt-experiencing individuals can make different choices, for example.

Another reason for guilt not differing from neutral in food choice could be, because of the interplay between two of the main assertions presented in this paper. The notion that negative emotions lead to bad
consumption decisions, exhibited by Garg, Wansink and Inman (2007) and the argument of guilt evoking good behaviors (Boster et al., 1999; Boudewyns, Turner & Paquin, 2013; Ketelaar & Au, 2003). Both of the opposing ideas generally dismiss the other, but the results implicate that perhaps both assertions are true. The non-significant data could be a result of both the experience of negative emotion unconsciously resulting in the urge to choose bad foods, and the more conscious acknowledgement of guilt that drives the need to compensate. This may result in the individual choosing like he would when in a neutral state. Both assertions could be at play and cancel each other out.

A more obvious reason for the insignificant differences between the neutral- and guilt groups would be that the survey experiment was not able to evoke feelings of guilt, as the manipulation check failed when the guilt-group was compared to the neutral group. A failure to evoke guilt means that the participants read a story that they felt indifferent towards which resulted in the same effect as participants reading the neutral scenario. This would explain the non-significant differences between the groups.

5.1 Limitations of this Study

The data set consisted primarily of participants from the student demographic of ages between 18 and 25 years of age. This limits the generalizability of the results. A demographic of older or younger participants may result in different health scores. Also, the survey was written in Dutch and as a result we can assume that the participants that entered the research have a good understanding of the Dutch language. The same survey could result in different findings when participants are from other countries. The Dutch student demographic is known to be relatively healthy (OECD Obesity-Update, 2017), which may be because members of this demographic make more healthy food choices compared to students from other countries with higher obesity rates like, Mexico and the United States. Another limitation of this study is that it did not control for the potential occurrence of emotional eaters among the participants. Having disproportionate amounts of emotional eaters in the data set may influence the findings as the groups (n = 50) were relatively medium-sized. An identical study that would control for the presence of emotional eaters among participants may find different results. As such, a data set excluding participants with high scores of emotional eating could find that there are no significant differences between the groups. Also, the conceptual framework did not control for participants' proneness to the emotions of guilt and sadness. As such, there is a chance that the participants had very high or very low proneness to the emotions in this study which would influence the results and decrease validity of the results. A factor that limits this study’s power is that, because of the violations of anova’s (analysis of variance test) criteria, the non-parametric Kruskal-Wallis test was chosen to interpret. This diminishes the statistical power of the results and increases the probability of failing to reject a false null hypothesis. Though unlikely, were the anova criteria met, it may have resulted in finding a significant difference between the guilt and neutral groups.
5.2 Suggestions for Further Research

To be able to reliably generalize the results of this study, further research could include control variables that may, otherwise, taint the data set. A similar study including the control variables ‘emotional eating tendencies’ and ‘proneness to guilt/sadness’ would provide more reliable results and increase the generalizability of the findings. This could be set up at a Dutch university, where participants would first fill in the TOSCA-scale developed by Tangney et al. (1992) to measure their proneness to guilt. In a second sitting these participants should fill in a survey very similar to the one in this study. As a result the researchers can further enhance the insight about feelings of guilt and their influence on food choice. They would also be able to control for guilt-prone participants, which would increase validity and generalizability.

The results of this study corroborate earlier implications that emotions of similar valence may not provide similar results. Although it is also hypothesized (Raghunathan & Pham, 1999) and in some cases found (Tangney et al., 2000) that guilt precedes differing choices compared to a neutral state of mind, the results of this study do not corroborate such an idea. To further investigate whether guilt precedes different choices in a ‘food choice context’, the addition of neurological data could provide more insight. A study which examines parts of the brain that are especially active when guilt-experiencing individuals make food choices could enhance our understanding of the effect guilt could have. Comparing the effect of guilt-eliciting scenario’s to sadness-eliciting scenario’s and neutral manipulations, researchers may be able to conclude differences. Using that information as a starting point, qualitative methods could be applied to further dissect individuals’ decision making processes after having read a guilt-eliciting scenario. That may result in findings that indicate that although in the food choice-context, there are no differences in health scores between guilt and neutral individuals, the cognitive processes differ. Having different cognitive processes, but similar health scores could be similar to two different algebraic equations with the same answer.

Finally, seeing that the manipulation of guilt cannot be deemed undoubtedly successful, further research could aim to develop guilt-evoking scenarios that are structurally and definitively accurate in their effect on participants. As a result, researchers can be certain in their endeavors of finding distinct emotion-specific effects on choice.
5.3 Conclusion

The aim of this study was to provide more insight as to how specific emotions of similar valence influence food choices. To answer the central question of the paper, three hypotheses were developed (to reject) through literature review and personal reasoning, namely:

H1: Guilt and sadness have differing influences on food choice.
H2: Sadness has a negative influence on food choice.
H3: Guilt has a positive influence on food choice.

The first and second hypotheses were confirmed and there was no significant sign that the third hypothesis should also be confirmed. This research found that sadness has negative influence on food choice, resulting in participants choosing more unhealthy foods. Also, the results indicated that guilt and sadness differ in their influences on food choice.

The findings corroborate the idea that “all negative moods are not equal” (Raghunathan & Pham, 1999), and should not be treated the same. The findings add to existing research in several important ways. Firstly, the idea that all negative emotions have bad influence on food choice is called into question and the counter-argument is substantiated by the results of studying two specific emotions of the same valence. Secondly, guilt is not found to be of significant influence on food choice. Thereby, this study further challenges the idea of similar emotions having similar influences. This study also highlights important differences in underlying tendencies of individuals when experiencing guilt and sadness. While guilt-experiencing individuals tend to mitigate their actions (Tangney et al., 2000), sadness-experiencing individuals look for fast mood-changing cues and distracting alternatives (Andrade, 2005; Evers et al., 2010). This indicates that guilt precedes a more action-oriented response while sadness precedes an action that is based on needs for distraction. Guilty individuals are more likely to face their world head-on, while sad individuals tend to look away. Thus, this research answers the call to more research on emotion-specific influences on choice by comparing two specific emotions of similar valence in a food-choice context and providing emotion-specific influences.

Furthermore, this research sheds light onto the need for deeper understanding of specific emotions and their influences on choice and decision making processes that precede choice. While guilt is theorized to
have an influence that would facilitate better choice in the food-context, no significant difference was found when compared to a neutral state. This means that there is still a lot to learn about the influences of guilt on choice.

The findings have deep relevance to existing body of knowledge concerning emotion-specific influences on choice. Guilt and sadness have never been compared before in the food choice context and the findings have shown that there are significant differences between health scores of the two. Researchers can use the added insight this paper provides as a basis towards further investigation of emotion-specific influences on (food) choice, knowing that feelings of guilt do not facilitate unhealthy food choice.
References


APPENDIX A. Surveys

Guilt Scenario

Dear participant, thank you for taking the time to contribute to this research concerning empathy. It has been found that people who can identify with hypothetical situations and feel the feelings a situation would evoke when experienced are more likely to have deeper relationships with their friends. These people have high emotional intelligence and make for great friends, nurturing people and tend to be more successful in family and business life. You will read a short scenario and answer 7 questions afterwards. This will take approximately 5-7 minutes.

You can now proceed with the survey.

Demographic Questions:

Age group, Student/Professional, Male/Female

Participant clicks “Next”

Dear participant, please try to vividly imagine yourself in the following scenario and notice the emotions you experience.

“You are house-sitting for your best friend’s parents. It’s a pretty easy task, actually. All you have to do is eat their food and collect the mail. Also, you have to feed their bird, which has become a valued member of the family and you’ve even heard your best friend talking about how much his father loves that bird. Everything is going just fine until one morning. As you walk down the stairs in you pajama’s, you discover that the bird died during the night. You realize that you turned the air-conditioning on ‘high’ during the day and forgot to turn it down at night as you had been instructed. The bird died from the excessive cold.”

Try to imagine that you are in fact in this situation and proceed with the following questions.

Participant clicks “Next”
Please indicate which meal/snack you would prefer to eat.

Hamburger with fries vs. Spaghetti with fish

Strawberries vs. Chocolate

Avocado Salad meal vs. Cheese Pizza Slice

Cola beverage (of preferred brand) vs. Water beverage (with mint and lemon)

Potato chips vs. Rice cakes

Cookies vs. Apples

Granola bar vs. Candy bar

Participant clicks “Next”

You’ve helped us enormously. Thank you for your time.

END.

Sadness Scenario

Dear participant, thank you for taking the time to contribute to this research concerning empathy. It has been found that people who can identify with hypothetical situations and feel the feelings a situation would evoke when experienced are more likely to have deeper relationships with their friends. These people have high emotional intelligence and make for great friends, nurturing people and tend to be more successful in family and business life. You will read a short scenario and answer 7 questions afterwards. This will take approximately 5-7 minutes.

Demographic Questions:

Age group, Student/Professional, Sector, Male/Female

Participant clicks “Next”

Dear participant, please try to vividly imagine yourself in the following scenario and notice the emotions you experience.
Imagine you are at work just finishing a powerpoint-presentation that you’re scheduled to present in half an hour. You get a call from one of your mother’s neighbors. She tells you that she knows your mother is home, but she hasn’t opened the door while the neighbor has been ringing the bell for 30 minutes. She heard the sound of someone falling and rushed to your mother’s house. She tells you, you have to come home. You rush to your mother’s house while ignoring several stop signs along the way. You run towards the door and open it with your key. You and your neighbor walk in the door and your neighbor screams out. Your mother is lying on the floor next to the stairs and doesn’t seem to be breathing. Your neighbor runs to find a doctor that lives in the neighborhood. He comes in and checks your mother’s vital signs. He tells you she’s past away.

Participant clicks “Next”

Try to imagine that you are in fact in this situation and proceed with the following questions.

Participant clicks “Next”

Please indicate which meal/snack you would prefer to eat.

Hamburger with fries vs. Spaghetti with fish

Strawberries vs. Chocolate

Avocado Salad meal vs. Cheese Pizza Slice

Cola beverage (of preferred brand) vs. Water beverage (with mint and lemon)

Potato chips vs. Rice cakes

Cookies vs. Apples

Granola bar vs. Candy bar

Participant clicks “Next”

You’ve helped us enormously. Thank you for your time.

END.

Neutral Scenario

Dear participant, thank you for taking the time to contribute to this research concerning empathy. It has been found that people who can identify with hypothetical situations and feel the feelings a situation would
evoke when experienced are more likely to have deeper relationships with their friends. These people have high emotional intelligence and make for great friends, nurturing people and tend to be more successful in family and business life. You will read a short scenario and answer 7 questions afterwards. This will take approximately 5-7 minutes.

Demographic Questions:

Age group, Student/Professional, Sector, Male/Female

Participant clicks “Next”

Dear participant, please try to vividly imagine yourself in the following scenario and notice the emotions you experience.

I ran into Pat, an old acquaintance of mine, the other day. This happened at the mall. To tell you the truth, I did not realize that it was Pat for a long time. It did look like the Pat I knew from behind (especially the slouch), but I couldn’t be sure. It was only when Pat started walking that I realized it couldn’t be anyone but Pat. Pat had this characteristic way of walking without really lifting the legs that was kind of a “trademark” Pat walk.

Since Pat and I hadn’t seen each other in a long time, we wanted to catch up on each other’s lives and decided to meet at a local bar. I was looking forward to the meeting since I wanted to find out what Pat had been up to in all these years. I arrived about 10 minutes late and Pat was already there. The bar was very crowded and the music was really loud. We could hardly hear each other talk! I decided that I would have to do my “catching up” act another time.

We continued sitting in the bar, listening to music for a while. A little later, we ran into one of our mutual friends from school - Alex - at the bar. For some odd reason, the music also became softer once Alex arrived. Someone must have reduced the volume. Alex, Pat and I always used to hang out together and we reminisced about the times we spent together. We talked about anything and everything that came to our minds, including the TAs and our professors. I was trying to figure out the ways in which Pat and Alex had changed and I am sure they were trying to “figure” me out as well.

Later, the three of us left the bar to go see a movie and ran into another friend of ours from school - Yerah! The four of us talked about how bizarre the whole thing was – that we should all meet after such a long time. As it turned out, Yerah was with a group of friends who also wanted to see the movie we wanted to see. The movie (whose name I forget now) was “so-so”, but had a interesting theme -- it was about four friends meeting after a long time.

After the movie, Alex, Pat and I went out for some coffee at the local coffee-shop. Alex had an early appointment next day and had to leave shortly. But Pat and I continued chatting for a while and then decided to go home and catch some sleep since it was getting so late. As we parted, we promised to meet again sometime soon.

Participant clicks “Next”

Try to imagine that you are in fact in this situation and proceed with the following questions.

Participant clicks “Next”

Please indicate which meal/snack you would prefer to eat.

Hamburger with fries vs. Spaghetti with fish

Strawberries vs. Chocolate

Acocado Salad meal vs. Cheese Pizza Slice
Cola beverage (of preferred brand) vs. Water beverage (with mint and lemon)

Potato chips vs. Rice cakes

Cookies vs. Apples

Granola bar vs. Candy bar

Participant clicks “Next”

You’ve helped us enormously. Thank you for your time.

END.
Beste participant,

Allereerst bedankt voor je medewerking aan dit onderzoek omtrent empathie. Eerder onderzoek heeft gevonden dat mensen die zich beter in een hypothetische situatie kunnen plaatsen en zich de gevoelens van de situatie goed kunnen voorstellen, meer kans hebben op diepere relaties met anderen. Deze mensen zijn emotioneel intelligent, zijn goede vrienden, zijn zorgzaam en hebben meer kans op een succesvol familieleven en een succesvolle carrière.

Je zal nu wat demografische gegevens invullen (die geheim worden gehouden en alleen voor dit onderzoek gebruikt zullen worden). Vervolgens zal je een scenario lezen. Probeer je zo goed mogelijk in het scenario te plaatsen en de gebeurtenissen tijdens het scenario te beleven. Naderhand, met het scenario in het hoofd, beantwoord je zeven vragen waarin je een keuze maakt tussen twee maaltijden/snacks. Daarna is het onderzoek voorbij. Om zeker te zijn van relevante resultaten vragen we je minstens 5 minuten met het onderzoek bezig te zijn. Dit onderzoek duurt tussen 5 en 10 minuten.

1. Wat is je leeftijd?
   - <18 jaar
   - 18-25 jaar oud
   - 26-35 jaar oud
   - 36-45 jaar oud
   - >45 jaar oud

2. Wat is je geslacht?
   - Mannelijk
   - Vrouwelijk
   - Anders

3. Wat is op jou van toepassing? Ik ben een:
   - Scholier (middelbare school)
   - MBO-Student
   - Bachelor Student aan HBO-instelling
   - Bachelor Student aan WO-instelling
   - Master Student aan WO-instelling
   - Young Professional (<3 jaar werkervaring)
   - Professional (>3 jaar werkervaring)
   - Anders
Beste participant,

Doe je best je het volgende scenario goed voor te stellen. Probeer jezelf in het scenario te plaatsen en merk de gevoelens die je ervaart zo goed mogelijk op.

Scenario:

Je moet passen op het huis van de ouders van je beste vriend. Het is een best gemakkelijke taak. Het enige dat je hoeft te doen is de post ontvangen en hun eten ophalen. Ook moet je hun huisdier voeden. Het is een vogel die inmiddels al echt deel uitmaakt van de familie. Je hebt je vriend al eens horen praten over hoe geweldig zijn vader de vogel vindt. Alles gaat prima tot een ochtend. Terwijl je van de trap loopt in je pyjama, ontdek je dat de vogel in de kooi ligt. Het vogeltje is tijdens de nacht overleden. Je beseft dat je de air-conditioning in het huis niet hebt uitgezet toen je ging slapen, terwijl het op de hoogste stand stond. De ouders vertelden je nog voor hun vertrek om altijd de air-conditioning uit te doen voor je ging slapen. De vogel is overleden door de kou.

Kies nu uit de volgende vragen telkens een maaltijd/snack die je zou willen nuttigen.

4. **Welke van de keuzes hieronder zou je prefereren?**

![Burger](image1.png)  ![Spaghetti](image2.png)

5. **Welke van de keuzes hieronder zou je prefereren?**

   Schaaltje aardbeien

   Chocolade (puur, melk of wit)
6. Welke van de keuzes hieronder zou je prefereren?

| Avocado Salade | Pizza Slice |

7. Welke van de keuzes hieronder zou je prefereren?

| Coladrankje | Ijsgieten |

8. Welke van de keuzes hieronder zou je prefereren?

| Snoepgoed | Meusli reep |
9. Welke van de keuzes hieronder zou je prefereren?

Rijstwafels

Chips

10. Welke van de keuzes hieronder zou je prefereren?

Koekje

Appel

Beste participant, bij dezen is het onderzoek ten einde. Bedankt voor je deelname.