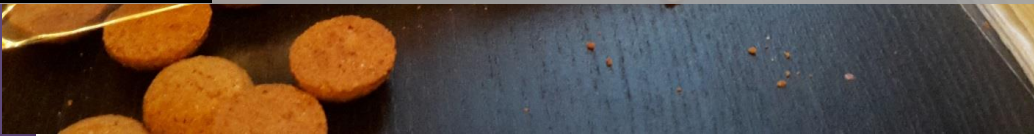


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## THE INFLUENCE OF FOOD UNIT SIZE ON SHARING



A study on the influence of the unit size of snacks on eating and sharing and the moderating role of self-control | Anouschka Kleijn  
900525442050, guidance by E. van Kleef

## Contents

Abstract .....	2
Background and objective .....	2
Methodology .....	2
Results .....	2
Discussion .....	2
Introduction .....	3
The portion size effect .....	3
The unit size effect as an explanation for the portion size effect.....	3
This study .....	4
Research objective and research questions .....	4
Theoretical Framework .....	5
Unit Size Effect.....	5
Sharing .....	7
Trait Self-control as moderator of the influence of unit size on sharing .....	8
Conceptual framework and hypotheses .....	9
Hypotheses .....	10
Research methods.....	10
Study design and procedure .....	10
Participants and procedure .....	10
Measures .....	11
Questionnaire 1 – Before the kruidnoten were handed out.....	11
Questionnaire 2 – 24 hours after receiving the <i>kruidnoten</i> .....	12
Data Analysis.....	13
Results.....	14
Participant characteristics and randomization check .....	14
Hypotheses .....	14
Influence of different unit sizes of an indulgent snack on the eating and sharing behaviour .....	14
Influence of self-control on the eating and sharing behaviour .....	15
The interaction effect of unit size and self-control on the amount eaten and shared .....	15
The self-reported reasons to share (a part of) the indulgent snack.....	15
Additional Analyses .....	16
Discussion.....	18
References .....	20
Appendix 1 – First questionnaire .....	22
Appendix 2 – Follow up questionnaire.....	23
Appendix 3 – Self-perceived reasons for sharing .....	28

## Abstract

### Background and objective

The effect of unit size (i.e. people eat significantly more from larger units of food than from small units of food, given equal portion sizes) has been proven in many different studies. However, the underlying causes for this effect are still unknown. One provided reason is the sense of appropriateness; it would not be appropriate to eat all units presented, unless there is only one unit presented. Another cause for the unit size effect could be that smaller units are easier to share. However, no studies are yet conducted to examine how unit size of an indulgent snack influences the amount people share and/or eat of that specific indulgent snack and the role of trait self-control in this matter. This is the main objective of this study. It is expected that small unit sizes lead to less consumption and more sharing, particularly for people with high trait self-control.

### Methodology

The study had a between subjects design with one factor ( $n=54$ ; 27 males, 27 females); unit size of an indulgent snack (large versus small). The snack used in this research was *kruidnoten*, which are small Dutch cookies of gingerbread taste, eaten especially around the holiday *Sinterklaas*. The participants received the indulgent snack either in one large unit size (1 unit containing 55 pieces) or in 5 small units (each containing 11 pieces). Participants were kept ignorant of the fact that there was another unit size available and that the indulgent snack was part of the study. Participants received the indulgent snack as a presumed reward for filling in a questionnaire to measure the trait self-control. Exactly 24 hours after receiving the reward, participants received an email containing a link to an online survey, in which questions about eating and sharing behaviour were asked. The key variables were; the percentage of the given snack eaten, shared and left over. Furthermore, participants' self-reported reasons for sharing were examined using an open-ended question.

### Results

Participants ate on average 43% of their indulgent snack and shared about 24%. Unit size did not significantly influence the amount eaten ( $p=0.71$ ) or shared ( $p=0.99$ ). Self-control did not have significant influence either; main effects of self-control on the percentage eaten ( $p=0.56$ ) and the percentage shared ( $p=0.99$ ) were both insignificant. The interaction effect of unit size by trait self-control was also not significant. Self-reported reasons for sharing (in digressive order) were: *social obligation, liking of sharing, diet/prevention, convenience, being full, dislike/allergies* and *do not know*. Gender differences between the reasons given to share snacks were observed in that males' most reported reason was 'social obligation' while females reported to share food primarily because they like to share.

### Discussion

In contrast to other studies showing substantial unit size effects on food intake, this study did not find an influence of unit size of indulgent snacks on the amount eaten and shared. The main difference between this study and previous research is that this study was done in a natural environment instead of a lab environment. The time given to participants to eat the food was also much longer than in (24 hours) than most other experiments. As the study was conducted in a natural environment, there might be other unknown factors that could not be controlled. However, a lot of gain can be derived from studying the effect of food unit sizes in daily life and thus more studies need to be conducted researching this topic.

## Introduction

Due to the constant availability of food, obesity has become an increasing problem (Livingstone 2001). This is partly caused by the lack of sufficient physical activity. However, physical activity has not declined since the 1980's and can therefore not be the cause of the increase of obesity (Westerterp and Speakman 2008). Hence, the amount people eat seems to be the main problem. There are many reasons causing people to overeat. There is much food available to the Western World. Partially overeating is caused by cues people are not aware of (Herman and Polivy 2008). For example, as a child, most people learn that it is appropriate to clean a plate. People learn implicitly that one plate of food represents a proper meal and must thus be finished (Birch, McPhee et al. 1987). This cue is an example of a social norm. Other cues have temporal causes; it is considered normal to eat breakfast, lunch and dinner. Yet other cues can be caused by availability; the food would have gone to waste if it was not consumed. These cues foster food intake, even though people are not always hungry when these cues are present. These cues are partially the cause that people do not stop eating when they have had enough, but when the cue to stop eating presents itself. Internal and external cues have an influence on the food intake of people. An internal cue, for example, is feeling hungry or having a rumbling stomach. External cues represent all the cues from outside oneself. External cues are not always noticed and therefore influence the food intake of people unconsciously (Herman and Polivy 2008).

## The portion size effect

One external cue that influences our food intake is the portion size. The size of portions, plates and packages has increased over the years, mainly in the United States and Europe. When the size of the portion presented increases, the food intake increases too (Rolls 2003). This effect is called the portion size effect. Less than half of the people take notice when the amount presented to them changes and feel the same level of satiety after eating. For example, people tend to empty their whole plate, regardless of the amount presented to them. One experiment found saturation when 70 grams of spaghetti was presented to the participants, or 150 grams (Geier, Rozin et al. 2006). In both groups the whole plate was finished on average. Eating one portion was considered to be saturating and it was not influenced by the size of the portion. This means that the unnoticed external factors decide when someone has had enough, instead of the internal factors. When the plate is empty, the hunger is gone, is the association people make.

The portion size effect is apparent in all kinds of food and meals, even when the food is not palatable (Wansink and Kim 2005). The study of Wansink and Kim consists of a test with fresh and old popcorn. The larger the portions of popcorn provided to the participants, the more they ate. The freshness of the popcorn did have some influence on the amount eaten, but still 33.6% more was eaten of the larger portion when old popcorn was served. In the fresh popcorn group, this was a somewhat higher percentage; 45.3% more was eaten of the larger portion. So, especially the portion size influenced the food intake, not the palatability. Overall, research has shown that the portion size effect is particularly strong for snack-related foods compared to meal-related foods. In snack-related foods there was a 30%-45% increase in food intake and in meal-related foods a 18%-25% increase (Wansink 2004).

## The unit size effect as an explanation for the portion size effect

One explanation for the portion size effect is the unit size effect. Moving from one portion to another creates a monitoring moment and can therefore influence the food intake. A new unit also creates a

pause moment and therefore a monitoring moment. The unit size effect holds that if the same portion of food is presented in multiple items instead of one item, the food intake will decrease. For example; if someone is given one large chocolate bar, that person will eat the whole thing. If the same amount is given, but now divided over five mini chocolate bars, on average only three of them will be eaten (van Kleef, Kavvouris et al. 2014).

So far, unit size has been explained by perceived norms of appropriate food intake. In other words, one unit represents a culturally acceptable unit of food to eat in a single eating episode. What is not explained or researched until now, is the influence of sharing. When someone has multiple items, one could expect that this is easier to share with other people. When a unit is given away, it cannot be consumed by a person himself. Consequently, sharing might prevent people from eating all units. This might be another explanation of why smaller units tend to lead to less consumption, in addition to the explanation of perceived appropriateness.

People that pay attention to their eating behaviour, probably want to restrain their food intake; in this case by not eating all units. With this logic it might even be on purpose, that people share their food; in order to prevent themselves from snacking too much. The extent to which people are able to break habits, resist temptation and keep good self-discipline combined, describes the extent to which people possess trait self-control (Tangney, Baumeister et al. 2004). Thus, if the participants have higher trait self-control, they are expected to share more of their food than people with lower trait self-control. In other words, the unit size effect is expected to be mainly apparent for people with a higher trait self-control.

### **This study**

In this study, the influence of unit size will be investigated in snack consumption. This will be done by handing out bags of *kruidnoten* in two different unit sizes. The large unit size consists of one bag containing 55 pieces and the small unit size of five bags containing 11 pieces each. The different unit sizes have the same portion size; 55 pieces, which equals 100 grams. Due to the unit size effect, it is expected that people who receive multiple small units eat less than participants who receive one large unit. Furthermore, it is expected that with multiple units sharing is easier and thus done more often than when the participant possesses one large unit. Trait self-control is measured using a questionnaire before the *kruidnoten* are handed out to the participants as a supposed reward. After 24 hours a second questionnaire will be sent to participants in which they are asked about their consumption and sharing behaviour. Since the effect of sharing is likely to be more apparent in a natural than in a lab environment, the study will be conducted in a natural environment.

### **Research objective and research questions**

The main objective of this study is twofold. First, the study aims to find to what extent different unit sizes of an indulgent snack influence the amount people share and eat of that specific indulgent snack. Second, the role of trait self-control in relation to the amount eaten and shared is studied, as well as the interaction effect between trait self-control and unit size.

### **Main question**

To what extent do different unit sizes influence the percentage of an indulgent snack people share and eat in a 24 hour time frame?

### Sub questions

1. To what extent do different unit sizes influence the percentage of an indulgent snack eaten and shared?
2. To what extent does trait self-control influence the amount eaten and shared?
3. To what extent do different unit sizes and the trait self-control combined influence the amount eaten and shared?
4. What are self-reported reasons to share (a part of) the indulgent snacks?

## Theoretical Framework

The amount of food people consume is influenced by many factors. Eating too many indulgent snacks can lead to obesity (Westerterp and Speakman 2008). It is thus important to know how people react to an indulgent snack that is given to them. In this chapter, different aspects that are expected to influence eating behaviour are discussed. Firstly, the unit size effect is of importance. This effect means that food intake differs when the same amount of food is packed in different sizes of packages; or units. Multiple packages are expected to lead to less consumption (Kerameas, Vartanian et al. 2014). Multiple units are presumed to be easier to share. So secondly, the influence of sharing is discussed. People can have different reasons to share their treat, which will be examined in this study. One reason could be self-prevention. Lastly, it is expected that people with higher self-control are better at resisting temptation and are therefore better able to eat less and share more. Trait self-control is defined and explained.

### Unit Size Effect

The unit size effect states that a unit indicates the level of appropriateness (Geier et al., 2006; van Kleef, Kavvouris et al. 2014). One unit seems to be seen as an appropriate amount to consume and finish. Consequently, larger units lead to more food intake and by changing unit sizes the food intake can be influenced. The unit size effect has been proposed as an explanation for the portion size effect. There is a difference between a portion and a unit. Namely, equal portions in terms of volume, calories or grams, can be different in unit size. One portion could for example be 180 grams of potato chips (see figure 1). This can be presented in one large unit, thus a bag of 180 grams, or for example in 6 small units; 6 bags containing 30 grams each.



Figure 1 – Equal portions of chips in different units (left; small units 6x30 grams right; one large unit of 180 grams)

Kerameas, Vartanian and colleagues (2014) introduced a new view on the unit size effect. It is not the case that one unit is considered to be the appropriate amount to take per se. If there are multiple

units presented, it is regarded acceptable to take more than one, although not all of them. Therefore, by using the effect of unit size, food intake can be reduced, but people might choose to eat more than a single unit. For example, participants of the study of Kerameas, Vartanian and colleagues (2014) were served either one or three cookies (units), in portions of 30 grams or 90 grams (portions), which together form four options: one cookie of 30 grams, three cookies of 10 grams each, one cookie of 90 grams or three cookies of 30 grams each (table1).

When the participants received three instead of one cookie, they ate less, regardless whether the portion size was 30 grams or 90 grams. This study additionally shows that the effect is apparent both when the cookies are wrapped separately and when they are unwrapped. The unit size effect is likewise proven by other studies.

For example, van Kleef, Kavvouris and colleagues (2014) proved that when participants were presented 5 pieces of chocolate that together consisted of the same portion as one larger piece of chocolate, on average only 3 pieces of chocolate were eaten of the smaller units. When given one large unit of chocolate, most participants finished the entire unit.

This decrease of food intake when being offered smaller units is partly caused by the influence monitoring has on the eating behaviour (Wansink 2004). Opening a new unit creates a pause moment and therefore a moment to monitor. Another experiment showed that the more effort people have to put into their consumption behaviour, the less they will eat (Wansink 2004). Opening a package can be considered an effort and thus influence the amount of food eaten. Another reason for the effect of unit sizes is the perception of appropriateness (van Kleef, Kavvouris et al. 2014). It feels appropriate to eat one unit when this is presented. However, when five units are presented, three seems a more appropriate number to consume, it might be considered greedy if more is eaten.

Van Kleef, Kavvouris and colleagues (2014) conducted three experiments on the influence of unit size. The small unit size consisted of five pieces of chocolate. The large unit size consisted of one piece of chocolate. The same portion size was used for both unit sizes. In the first two experiments the feelings of impulsiveness of participants on eating the large unit versus eating all five small units were compared. In this experiment the participants felt more impulsive when they ate more units. In the third experiment, participants were also given two unit sizes equal to the experiments described above. Participants could now choose how much they consumed. This led to less consumption for the smaller unit size and thus confirmed the influence of the unit size effect. The participants felt equally impulsive, regardless of the unit size presented to them. A reason that consumers in this experiment who ate the small units did not feel more impulsive than consumers who ate the larger unit, might be that they corrected themselves already by eating less than normally. For example they wanted to eat all 5 units, but that felt too impulsive and this caused the participants to eat only 3 units. Feeling impulsive could thus be an underlying reason for changes in the eating behaviour when different unit sizes are presented.

Another study tried to measure the unit size effect for a longer time period; for three days participants got a box to take home, containing four snack foods (potato chips, cookies, candy and cheese crackers) in two different unit sizes and two different portion sizes (Raynor and Wing 2007). The small portion size group received snacks containing a total of 4350 kcal and the large portion sizes consisted of 8750 kcal. The amount of units differed per portion size; small unit plus small portion consisted about 5 servings of each snack food, small unit plus large portion of 10 servings,

large unit plus small portion of 1 serving and large unit plus large portion of 2 servings of each snack food.

Only the portion size effect showed to have a significant influence on the food intake of the participants, whereas the unit size did not; even slightly less was eaten of the larger unit in the large portion size. This study consisted only of non-dieting, non-restrained eaters, which might have influenced the results. Furthermore, other factors of influence could not be measured or known because it was a natural environment study. Unknown factors could thus have influenced the results.

It is already stated that a given unit size gives a feeling of appropriateness and this feeling in turn influences eating behaviour. There could be other causes of the effect of unit sizes. It could for example be that not only the amount eaten but the amount shared is likewise influenced by a feeling of appropriateness; that it is rude or impolite not to share. Hence, the size of units may influence sharing behaviour, because multiple units seem easier and more appropriate to share.

### Sharing

When a person has multiple units, it might be easier and logical to give some away than when a person just has one large unit. Ergo, it is expected that the unit size effect also has a positive effect on the amount people share. Sharing is a concept which is hard to define. Not much literature focuses on the concept of sharing. According to Kaplan, Gurven and colleagues (2005), the social norms for sharing are a result of two opposing forces: gains from cooperation versus possibilities for free-riding. In academic research sharing is often used interchangeably with gift-giving or commodity exchange. Belk (2010) distinguishes these three concepts from each other.

Sharing is equal to gift-giving in the sense that it is both inalienable, personal and has a bonding function. Sharing and gift-giving differ, because sharing is nonreciprocal and gift-giving is only nonreciprocal in appearance; gift-giving between people has a certain balance which both parties try to maintain and improve. A subsequent large difference between sharing and gift-giving is that gifts are surrounded by certain rituals, such as the way they are wrapped. Sharing is a more day-to-day activity to which less attention is paid, such as commodity exchange.

In commodity exchange, as opposed to sharing, the monetary value is of importance. Furthermore, it is impersonal, independent and reciprocal. Commodity exchange for example occurs in households, where different household members make use of the same kitchen inventory. Furthermore, commodity exchange is about the reproduction of rights to objects, not the reproduction of relationships between people. In contrast, the most important incentive to share is the bonding effect. This is also a difference between sharing and commodity exchange. Friends and families share a lot of products with each other whereas it is not so much a habit between strangers. Research suggests that the closer one person is related to another, the greater inequalities in amounts shared occur (Hames 1987). The imbalances are tolerated due to relative need and bargaining power (Kaplan, Gurven et al. 2005).

Reciprocity will also play a role, because it is natural behaviour to share if when too much food is available, so the person sharing will get something back when others have too much (Bazerman and Moore 2012). If a person now possesses five units of a certain indulgent snack and gives away three of them to three friends, that person can expect to get a (part of) an indulgent snack from them as well in the future. This way the time snacking can be enjoyed is prolonged. An important note is that



the reciprocity does not need to occur immediately and sharing does not even have to occur with the same person the snack is shared with before.

If a person is alone, food cannot be shared because there is no one to share with. Hence, the amount of time a person spends alone could influence the amount of food that is shared. Previous research concerned the effect of being alone and overeating. This research (Bunn, Poston et al. 2000) suggests that overeating happens moreover when being alone is experienced as feeling lonely or being bored. Being alone in this sense is a part of the measurement tool DIET, which is tested by Bunn, Poston and colleagues (2000) and proves to be accurate. Abraham and Beumont (1982) did a research in which 78% reported being alone as a reason to overeat/practice binge eating. After tension (91%) and eating something (i.e. anything at all) (84%) it was the most important reason to eat too much.

Belk (2010) suggests that women share more than men, since they are traditionally the persons who stay at home and take care of the children and visitors and the home is the place where the most sharing happens. Another reason which can cause differences between the amounts people share can be rooted in self-control.

#### **Trait Self-control as moderator of the influence of unit size on sharing**

Self-control is defined as the extent to which people are able to break habits, resist temptation and keep good self-discipline (Tangney, Baumeister et al. 2004). Self-control plays an important role in eating behaviour when the long-term goals and short-term goals (or impulses) are not in line with each other (Hofmann, Friese et al. 2009). When this is the case, it is harder to achieve a long-term goal. For example, a short-term goal could be enjoyment of a snack and the contradicting long-term goal could be losing weight. Usually the long-term goal is of higher priority but harder to achieve, due to the contradicting short-term distractions. Self-control influences which of those goals will be achieved, since the link between the temptation and the long-term goal is faster recognized by people with high self-control (Hofmann, Friese et al. 2009). The kind of self-control meant here is dispositional self-control, which is relatively stable over time, in contrast to state self-control which is influenced by mood, working memory capacity and motivation (de Ridder, Lensvelt-Mulders et al. 2012).

People that get multiple units instead of one, have more options to share their food. The decision to either share the food or keep it to themselves can be influenced by trait self-control in the sense that it might be a tactic people use to prevent overindulgence. Sharing food might make it easier to resist temptation because consumption is stimulated by food simply being in sight (Wansink 2004). When the food is shared it is out of sight and therefore the temptation to consume will be gone. People with more self-control could thus be sharing more of their food than people with less self-control, particularly when they have multiple units. In this way sharing functions as a kind of self-protection method. Sharing could thus be used to protect one's own interest.

Monitoring and self-control are related to one another. When eating is perceived as a threat to self-control, people are more likely to start monitoring their consumption (Hofmann, Friese et al. 2009). Monitoring is easier when pause moments are created, which are created by multiple units; opening a new unit is a pause moment, and therefore a monitoring moment, so monitoring is stimulated by unit size. Thus, it is expected that it will be easier to monitor the food intake for the people with multiple units and high trait self-control. Sharing could be used as a self-control strategy to limit the

food intake. Unit size might facilitate this self-control strategy, as smaller sizes are easier and more convenient to share.

### Conceptual framework and hypotheses

The unit size of indulgent snacks is expected to have an influence on the amount people eat (Kerameas, Vartanian et al. 2014). Given equal portion sizes, people being given multiple small units are expected to eat less than people who get one larger unit. Thereby, it is expected that it is easier to share when a person has multiple units instead of one. This will bring the amount eaten for the people with small units even further down. Sharing has a bonding effect; to hand out (a part of) the indulgent snack a person has received can invigorate that person's relationship with the person the snack is shared with. It can additionally be used as a self-control strategy.

In this study, we expect that people with higher self-control are more likely to use sharing as self-control strategy. Self-control is thus expected to influence the amount people share. Self-control is thereby expected to have an influence on the amount people eat; the more people can resist themselves from the temptation of snacking, the less they will eat (Tangney, Baumeister et al. 2004). Other influences on the amount people eat and/or share that are studied are gender and the amount of time spent alone. Gender is an important factor because Belk (2010) suggests that women share more than men, due to their traditional place in the household. The amount of time spent alone is studied as an influence, since being with friends might stimulate the amount people share; if a person is alone, there is no one to share with.

It is expected that the extent to which the unit size effect influences the eating behaviour will remain the same in a 24 hours experiment as opposed to a short-term experiment such as most of the studies done before. Due to the opportunity to share, which is caused by the natural environment, the effect of unit sizes is expected to be even larger than in previous studies. It additionally is expected that people with high trait self-control will eat less and share more than people with low trait self-control. Women are expected to share more than men. More time spent alone is expected to lead to less sharing than when more time is spent among others.

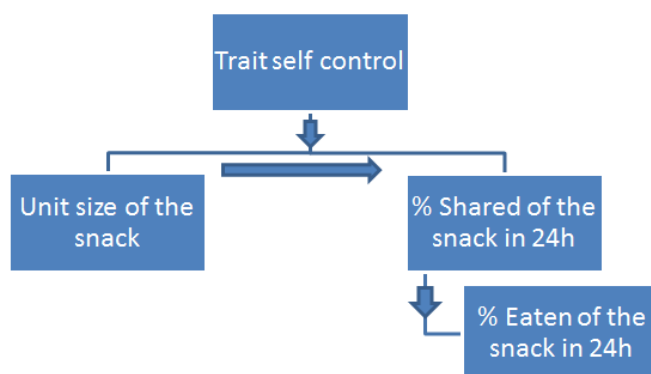


Figure 2 - Conceptual Framework

## Hypotheses

- H1 Individuals who receive multiple small units will share more and eat less than individuals with the one larger unit.
- H2 Individuals with higher trait self-control will share more and eat less than individuals with low trait self-control.
- H3 The unit size effect of indulgent snacks is more apparent among consumers with high trait self-control than among consumers with low trait self-control.

## Research methods

### Study design and procedure

The study is a between subjects design with one factor; unit size of an indulgent snack (small versus large). The research was conducted within two months' time in Wageningen. Participants received the indulgent snack in one of the two unit sizes, unaware of the existence of another unit size being handed out and unaware that the indulgent snack was part of the research. They got it as a presumed reward for filling in the first questionnaire which measured trait self-control. Exactly 24 hours after receiving the reward the participants received an email containing a link to an online second questionnaire (created with online survey tool Qualtrics). In this questionnaire, they were asked questions about eating and sharing behaviour in the last 24 hours.

The indulgent snack chosen was *kruidnoten* which is familiar to and liked by many Dutch people. This way, personal preference does not have much interference in results. *Kruidnoten* are also chosen, because it is easy to divide these in large and small units by use of plastic bags and it is an indulgent snack which can easily be shared with others. 100 grams (55 pieces) were handed out to all the participants, half of them received 1 unit of 55 pieces and the other half of the participants received 5 units of 20 grams (11 pieces per unit).



Figure 3 – Large units (left) and small units (right)

### Participants and procedure

Recruited participants were students from Wageningen University & Research Centre. They were approached between 13.00h and 15.00h during weekdays, because this is just after lunch time and

this way the participants would possibly be equally hungry when receiving the indulgent snack. Different buildings of the Wageningen University (i.e. Forum, Orion and Leeuwenborch) were all visited on different days. It was attempted to find participants who were sitting alone, since having a group around them could have an influence on the sharing behaviour. People who sit alone could not share their reward immediately and would not have the feeling to be socially obliged to do so. Moreover, if a group would be asked to participate, their friends (namely the rest of the group) would also have received the same reward and there would be no point in sharing with them. To avoid this problem, people who sit alone were approached mostly.

85 people received the indulgent snack, of which 54 were useful for the research. Others were left out, because they did not fill in the follow up questionnaire or because they did not fill in all the questions. On top of that, 2 participants did not want the *kruidnoten* as a reward. Half of the respondents were male, the other half female (27 males and 27 females). 29 respondents received the large unit size and 25 respondents the small unit size. 30 participants were alone when receiving the indulgent snack, 24 were not. An overview is shown in table 1.

Table 1 - distribution participants

	Large Unit	Small Units	Total
<b>Males</b>	15	12	<b>27</b>
<b>Females</b>	14	13	<b>27</b>
<b>Alone</b>	21	9	<b>30</b>
<b>With others</b>	8	16	<b>24</b>
<b>Total</b>	<b>29</b>	<b>25</b>	<b>54</b>

The first questionnaire, which was handed out before the participants received the *kruidnoten*, measured the trait self-control, which was composed by the self-control scale designed by Tangney and colleagues (2004). In addition to these questions, the first questionnaire concluded with a few questions related to sleeping behaviour, to fool participants about the real purpose of the study and prohibit them from suspecting that the second questionnaire would be about their supposed reward.

The second questionnaire was sent after 24 hours to participants' email addresses. The first question in both questionnaires asked for the participant's name, to be able to link the first questionnaire to the second. Exactly 24 hours later, a reminder was sent to those who did not fill in the second questionnaire yet. The second questionnaire contains different questions about the experiences with the *kruidnoten*.

## Measures

### Questionnaire 1 – Before the *kruidnoten* were handed out

The original questionnaire in Dutch can be found in appendix 1. The first questionnaire measured the trait self-control by the self-control scale, as mentioned before (Tangney, Baumeister et al. 2004). The scale consists of 13 different statements with a 7-point Likert-scale, which altogether become one number representing the extent to which the participants possess the trait self-control. A reliability analysis was then conducted to be able to put different questions together as one item.

The alpha of these 13 items was 0.76,  $\alpha > 0.7$ , so sufficiently reliable. The scale could not be improved by deleting an item and therefore every item was kept. They were averaged, together forming the new construct self-control. Of this construct, a median-split was applied. All participants with a self-control lower than the median were put together as self-control low (0) and all above were put together as self-control high (1).

In this first questionnaire, also name, email address, age, height and gender were asked. There could be a difference between the eating and sharing behaviour of the different genders. Length was used to calculate the Body Mass Index (BMI) of the participants; because weight is a very personal question and the online survey would probably feel more anonymous, this was asked in the second survey. Gender, age and BMI were also asked to check whether randomization was successful.

### Questionnaire 2 – 24 hours after receiving the *kruidnoten*

Below, the questions from the second questionnaire are listed. The original questionnaire in Dutch can be found in appendix 2. The questions asked to answer the hypotheses described first, followed by the control questions of the study. The name of the participant was asked to link the first questionnaire to the second.

#### Key dependent variables

One key question asked the percentage the participant ate of the received snack, the percentage handed out and the percentage left over, the total amounting to a 100%. If a participant did not hand out anything, the subsequent four questions were skipped.

First of those was an open question asking why the participant handed out (part of) the snack. This was an open question, so there would be no influence of the expectations of the researchers. Answers would be derived into categories afterwards. The answers collected are shown in appendix 4, divided over the seven categories that were derived from the answers. The second asked with how many people the participant shared the snack, on a scale from 1 to 10, because probably more was shared when there are more people to share with. Third, it was asked if the sharing was done in one time, two times or more than two times. Fourth, how many hours the participant had the *kruidnoten* before starting to hand them out, on a scale from 0 to 10 (after 10 hours would also be a 10) would follow. The exact point of time when the snack was shared is interesting because when it is shared directly, the chance that social obligations play a role is higher.

#### Control questions (randomization check) and questions to describe sample

Participant were asked about their liking of the *kruidnoten* on a scale from 1 (not at all) to 7 (very much). This was to check that there are no differences between the groups of different unit sizes in how much they liked the snack. The time at which they received the *kruidnoten* followed, since the questionnaire is about the 24 hours after receiving the snack; this served as a reference point. The amount of time the participant spent alone, with others with his/her snack and with others without the snack was asked, the total amounting to 24 hours.

It was also asked how the participant felt about the amount received, if it was; *way too little, too little, precisely right, too much or way too much*. The next question measures the extent to which people are restrained eaters, with the use of the restrained eating scale, which consists of ten questions with a 5-point Likert-scale; from never to very often (Van Strien, Frijters et al. 1986). This is asked because there might be a relation between the amount shared and the extent to which the

participants watch their weight. This is used as a control question too, to check equal deviation over both unit size groups. Furthermore, obese people are more likely to eat more (von Deneen and Liu 2011) and have lower self-control (de Ridder, Lensvelt-Mulders et al. 2012). 10 questions measured this construct:

- *Do you eat less when you have recently gained weight?*
- *Do you try to eat less during meals than you actually want to?*
- *How often do you refuse to eat or drink, because you are afraid to become too heavy?*
- *Do you keep track of what you eat exactly?*
- *Do you eat slimming products?*
- *If you ate too much one day, do you eat less the following days?*
- *Do you eat less on purpose to prevent gaining weight?*
- *How often do you try to not eat snacks, because you watch your weight?*
- *How often do you try to not eat in the evening, because you watch your weight?*
- *Do you consider your weight when you eat?*

These 10 questions about weight watching had an alpha of 0.91;  $\alpha > 0.7$ . Deleting an item would not improve this very much so all items were kept. Ensuing was the question; *What is your weight in kilograms?* The BMI was calculated from the given weight and height of the participants. The formula to calculate BMI is  $\text{weight}/\text{height}^2$ . Furthermore a reassurance of the anonymity of the research was given, to have a better chance on an honest answer. The one but last question asked if the participant wanted to receive the results and if so, to submit an email address. An open question concluded the questionnaire, leaving space for questions and/or comments.

### Data Analysis

Chi-square were used to check potential gender differences across conditions. The equality between the different unit sizes groups on the aspects of BMI, liking of the *kruidnoten*, trait self-control, the amount of time spent alone/with friends with the *kruidnoten*/with friends without the *kruidnoten* and the extent to which people pay attention to their diet and how they felt about the amount they ate was checked by Analyses of Variance (ANOVAs). After this randomization check, the hypotheses were also tested by ANOVAs.

The open-ended question asking the reason for sharing was analysed and put into seven different categories. The reasons that were chosen to put into categories were all mentioned at least two times and the total of the categories covers all the answers given.

Additional explorative analyses were conducted to examine differences in the amount eaten and shared for restrained and unrestrained eaters. Participants were considered unrestrained eaters if they fell above the median of the group. An independent samples t-test tested the difference. In addition, a correlation test checked the relation between time spent alone or with friends and the amount people eat and share.

Lastly, an independent samples t-test checked the differences between males and females in eating and sharing behaviour.

## Results

### Participant characteristics and randomization check

A successful randomization requires that there should not be any significant difference between the experimental conditions in gender, liking of the *kruidnoten*, trait self-control, BMI, the amount of time spent alone/with friends with the *kruidnoten*/with friends without the *kruidnoten*, *restrained eating style and feelings about the amount of snacks received*.

There were no significant differences across groups for the following variables: BMI  $p=0.30$ , Self-control  $p=0.07$ , Amount of paying attention to diet  $p=0.33$ , how they felt about the amount they ate  $p=0.63$  Liking of *kruidnoten*  $p=0.99$ , Gender  $p=0.79$ , Amount of time spent alone  $p=0.76$ , Amount of time spent with friends without the *kruidnoten*  $p=0.58$ , Amount of time spent with friends with the *kruidnoten*  $p=0.52$ . All outcomes are  $>\alpha=0.05$  so all differences are insignificant. This means there are no significant differences between the two conditions, indicating successful randomization.

The differences between the amount of people present when the treat was handed out to the participants was significant ( $p<0.01$ ).

### Hypotheses

#### Influence of unit size of an indulgent snack on the eating and sharing behaviour

On average, 43.1% of the *kruidnoten* was eaten after 24 hours, and 23.9% was shared in this time frame. First an ANOVA test was conducted to investigate if there are differences between both unit size groups in the amount participants ate or shared. As shown in table 2, there were no significant differences in the amount eaten or shared in the different unit size groups; Eaten ( $F=0.1(p=0.71)$ ), shared ( $F=0.0(p=0.99)$ ) and left over ( $F=0.1(p=0.76)$ ). This suggests there are no differences in the eating and sharing behaviour when people receive different unit sizes. Hypothesis 1; "Individuals who receive multiple small units will share more and eat less than individuals with the one larger unit", is not supported.

Table 2 – Percentage of snacks eaten, shared and leftover (mean, sd) in small and large unit size conditions and for participants with high and low trait self-control

		Large unit		Small unit		Main effect unit size (p)	Main effect self-control (p)	Interaction effect unit size*self-control (p)
		Low self-control	High self-control	Low self-control	High self-control			
% Eaten	Mean	41.1	41.8	54.1	38.3	0.71	0.81	0.45
	Sd	44.2	32.0	38.7	31.9			
% Shared	Mean	18.1	37.6	27.7	20.1	0.99	0.40	0.15
	Sd	35.5	30.7	34.7	27.3			
% Left over	Mean	35.5	20.6	18.2	34.8	0.76	0.67	0.15
	Sd	42.5	30.9	36.3	36.4			

### Influence of self-control on the eating and sharing behaviour

The next step was to test whether participants with high self-control responded differently to the manipulated unit size of the snack. Table 2 also shows average percentage of the amount eaten, shared and left over for participants in the different unit size conditions and with high trait self-control and low trait self-control. ANOVA with unit size and trait self-control as independent variables and percentage of kruidnoten eaten showed no main effect of trait self-control ( $F(0.7)p=0.81$ ). Also, no main effect of trait self-control on the percentage of snack shared ( $F(1.1)p=0.40$ ) and the percentage of snack leftover ( $F(0.8)p=0.67$ ). Hence, hypothesis 2; “Individuals with higher trait self-control will share more and eat less than individuals with low trait self-control”, is not supported.

### The interaction effect of unit size and self-control on the amount eaten and shared

Table 2 shows that there is no significant interaction effect of unit size and self-control on the amount eaten and there is no significant interaction effect on the amount shared either. This dismisses the third hypothesis: “The unit size effect of indulgent snacks is more apparent among consumers with high trait self-control than among consumers with low trait self-control”.

### Self-reported reasons to share (a part of) the indulgent snack

Seven categories of reasons to share snacks were derived from the answers, as shown in Figure 4. A list of all the answers given are listed in appendix 3. The categories are derived in such a way that all answers fit in the categories, so no answer is left out. One answer could consist of multiple categories. For example; “Because I worked together with people and I do not like eating by myself. Furthermore, there was plenty to share.” Is divided over three categories; The first part is social obligation, not liking to eat by herself represents liking to share and “there was plenty” is categorized as convenience.

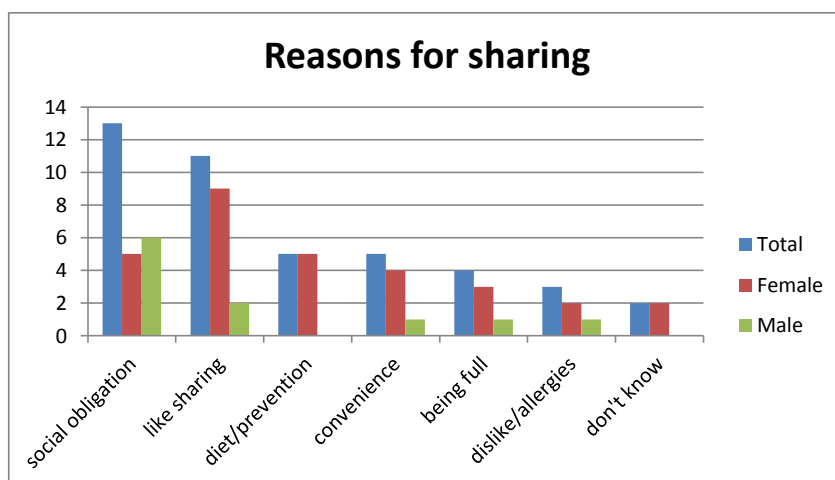


Figure 4 - Reasons for sharing

The category ‘social obligation’ was mentioned most often, closely followed by ‘liking to share’. Participants reported that they like to share and feel that it improves the atmosphere. They furthermore indicate that they feel that it is expected from them to share and they are conscious of this social obligation. Only two participants indicated that they had no clue why they shared (part of)



their treat. The differences between male and female were also apparent: Male participants mainly felt sharing to be a social obligation, while female participants mostly indicated that they share because they like to do this. Using sharing as a self-control method to prevent overeating was only given by a few female participants.

### Additional explorative analyses

Some additional analyses were done, to check some assumptions of the literature and to check if sharing indeed functions as a self-control tactic.

#### Sharing as a prevention method

A frequently mentioned reason for sharing snacks was '*wanting to eat healthy/don't want to become too fat*'. For these participants sharing was indeed used as a kind of self-control method. As restrained eaters chronically attempt to restrict food intake, it was checked whether restrained eaters ate less and shared more. Results show that there are no significant differences regarding the percentage of snack eaten by restrained and unrestrained eaters; Independent samples t-test ( $p=0.84 > \alpha=0.05$ ) (44.3% to 42.1%). Restrained eaters also did not significantly share more than unrestrained eaters ( $p=0.08 > \alpha=0.05$ ). However, this is a marginal difference;  $P=0.08 < \alpha=0.10$ . Restrained eaters shared 31.2%, compared to 15.8% which was shared by unrestrained eaters.

Table 3 - Differences between restrained eaters and unrestrained eaters in sharing and eating behaviour

	N	Shared		Eaten	
		Percentage	Sig. (2-tailed) (P)	Percentage	Sig. (2-tailed) (P)
<b>Unrestrained</b>	27	15.8%	0.08	42.1%	0.84
		(sd=26.3)		(sd=39.5)	
<b>Restrained</b>	26	31.2%		44.3%	
		(sd=36.2)		(sd=36.2)	

Since there is no significant difference between the amount eaten when people are self-reported restrained eaters or unrestrained eaters and there is a marginal difference between the amount shared when people are self-reported restrained eaters or unrestrained eaters, it can be assumed that although people use sharing as a diet method, it does not influence the amount people eat.

#### Correlation between time spent alone or with friends and eating and sharing behaviour

There is a significant correlation between the time spent alone and the amount people ate as is shown in table 4. The amount shared is not significantly less when more time is spent alone. For the time spent with friends and with the snack and the amount people shared, there is also no significant correlation (table 5). Thence, sharing (as opposed to the amount eaten) does not seem to be influenced by the time spent alone or with others.

Table 4 - correlation time spent alone and percentages eaten and shared

		Alone	% Eaten
<b>Alone</b>	Pearson correlation	1	0.50
	Sig.		0.00

		Alone	% Shared
<b>Alone</b>	Pearson correlation	1	-.2
	Sig.		0.26

(2tailed)			
	N	51	50
% Eaten	Pearson correlation	0.50	1
	Sig. (2tailed)	0.00	
	N	50	53

(2tailed)			
	N	51	51
% Shared	Pearson correlation	-0.2	1
	Sig. (2tailed)	0.26	
	N	51	54

Table 5 - correlation time spent with friends and percentage shared

		With friends with snack	% Shared
With friends with snack	Pearson correlation	1	0.1
	Sig. (2tailed)		0.58
	N	53	53
% Shared	Pearson correlation	0.1	1
	Sig. (2tailed)	0.58	
	N	53	54

### Differences between males and females

The assumption made by Belk (2010) that women share more than men is also checked. This gives significant results as presented in the table below; Females share more than males ( $((F=11.1(df=52))p=0.01)$ ). Men thereby eat significantly more than women ( $((F=1.9)p=0.02)$ ), which leads to a similar amount of left overs for both sexes (about 29%)( $F=0.4$ ). The total of percentages does not amount to a 100% since one woman did not fill in how much she ate by herself and how much she left over.

**Comment [KA1]:** Ff ergens opzoeken hoe ik dit mooi moet weergeven. Bij iedere F een df

Table 6 - Differences between male and female

	N	% Shared		% Eaten		%Left over	
		Mean	Sig. (P)	Mean	Sig. (P)	Mean	Sig. (P)
Male	27	13.7%	0.01	53.9%	0.02	28.1%	0.46
		Sd=24.1		Sd=39.4		Sd=38.3	
Female	26	33.3%		32.0%		29.7%	
		Sd=36.6		Sd=32.6		Sd=37.7	

## Discussion

The main objective of this research was to investigate to what extent an indulgent snack in different unit sizes influences the amount people share and eat of that particular indulgent snack and the role of trait self-control in this matter. It was firstly hypothesized that small unit sizes and high self-control of snacks would lead to less consumption and more sharing in a 24 hour time frame. Unfortunately, no evidence for those predictions was found. Participants ate on average 42% of the provided snack and this amount was not affected by the size of the units in which the snacks were handed out. This study used another methodological approach than studies that did find significant influence on the amount people eat when offered different unit sizes (Geier, Rozin et al. 2006, Kerameas, Vartanian et al. 2014, van Kleef, Kavvouris et al. 2014), which might have led to differences in results.

The largest difference is the environment in which this study is conducted; a natural environment as opposed to a lab environment. This has some limitations. In a natural environment many factors are unknown and uncontrolled. Another study (Raynor and Wing 2007) looked into the unit size effect in everyday life too and found no results as well. In Raynor and Wing's study the effect of portion size did still show a significant influence. One factor that influences the results (in both Raynor and Wing's study and the study conducted in this paper) is that the consumption is self-reported. People might lie about the amount they have eaten or shared, or simply forget how much they ate or shared. Further influences that have not been taken into account are the time of the day the snack is consumed and the circumstances of the participants. Being happy or feeling blue possibly influenced the consumption behaviour. Another explanation could be that the unit size effect only works for a short time period of time. This implies that the effect decreases when people are exposed to an indulgent snack for a longer time. This assumption is made because this study was a 24 hours experiment and the study of Raynor and Wing (2007) took three days. However, a study in a natural environment could be very useful, since it enhances the external validity and better advice to reduce obesity can be given when results are found.

Another reason why unit size did not show effect on the amount shared could be the differences in amount of people present when the snack was handed to participants. There was a significant difference between the two unit sizes and the amount of people present when the snack was handed to participants. It could be that people who had others around when receiving the snack handed out less (because the others present also received the same reward) or more than people sitting alone (because this could be more sociable people than the people sitting alone during lunch break).

Participants with higher trait self-control did not respond differently to the unit size manipulation, in contrast to our expectation. It might be that sharing is not a self-control approach of people to prevent overeating, but that they use other techniques to prevent overeating. Reasons could be the little distance between the high and low trait self-control groups. Since higher grades and academic achievements are a result of high trait self-control (Tangney, Baumeister et al. 2004), the participants of this group probably have fewer differences in self-control than a group with more diverse educational backgrounds would have had. Thereby it was a small number of participants, only 54. This could also have influenced the results. With a larger group the external validity would also increase. The randomization check showed that the differences between small and large unit size was  $p=0.07$ , which is almost significant at a level of  $\alpha<0.05$  and would be significant at a level of

$\alpha=0.10$ . Therefore, the group could be considered to be not random enough and a more random group might have given more significant results.

Another difference is the use of the snack *kruidnoten*. The portion was given as one unit or divided over five units, but one unit was still very easy to share. The large unit did not consist of one whole piece, but of 55 *kruidnoten* and could therefore still be shared. The differences might have been more apparent if the units were not so easily divided further and the choice would be created to share the units per whole or not at all.

The explorative question, inquiring the reasons for sharing, gave some interesting results. These results show high differences between males and females, which is even more interesting since the amount shared also differs significantly between males and females. Belk (2010) seems to have made the right assumptions, although this does not prove that the reason for sharing is that women are traditionally the persons to take care of the family and stay at home. Since the sample size is quite small, the results might reflect the reasons for sharing even better if a larger sample size is used. The reasons for sharing were asked by use of an open question. Giving categories to choose from in advance, might have led to different results. For example, two participants gave "I have no clue" as reason to share (part of their) indulgent snack. If different options were presented to them, they might have been able to analyse their behaviour better. In further research it is therefore recommended that the categories that have been discovered in this study will be used. People also thought sharing functions as a prevention method, as suggested before the experiment was conducted. Results suggest that people do share more when they are restrained eaters, but they eat the same amount as people who do not try to lose weight. Thus the expectation that sharing functions as a prevention method is not confirmed, although people do use this method.

For further research it is recommended to look into the differences in time spent alone or with others and the effects on consumption this causes. The underlying reasons why being alone leads to more eating is not yet clear. Other research suggests that people who feel alone eat more (Bunn, Poston et al. 2000), but since being alone does not necessarily mean feeling alone, there could be many other causes for the results found in this study. For example mindless eating might be cued more easily for people who are alone, since it is triggered for example by television watching (Liang, Kuhle et al. 2009). There could be a lot of causes and there is not necessarily a direct relation between spending time alone and eating more. The literature suggests that time spent alone leads to overeating. This gives reason to assume that people who spent more time alone have a higher BMI. This cannot be tested properly in this paper, since there are only five participants of which the BMI suggests obesity ( $BMI > 25$ ). It is also expected that people with overweight are likely to have a lower self-control (de Ridder, Lensvelt-Mulders et al. 2012). Both these factors could be investigated in further research.

Hopefully other research in this area can find significant influences of the unit size effect in a natural environment, because it might contribute to the reduction of obesity. An experiment in a natural environment increases the external validity and consequently the practical application of the findings. Sharing is still a disregarded subject and many more studies can be conducted examining this phenomenon.

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## Appendix 1 – First questionnaire

Beste deelnemer,

Bedankt voor het deelnemen aan mijn onderzoek. Dit onderzoek wordt geheel anoniem verwerkt.

Zou je onderstaande vragen zoveel mogelijk naar waarheid willen beantwoorden? Als je een geheel ingevulde vragenlijst inlevert krijg je een bedankje. Morgen ontvang je nog een email met aanvullende vragen.

Wat is je naam (voor + achternaam)?

.....

Wat is je email adres?

.....

Wat is je leeftijd (in jaren)?

.....

Wat is je geslacht?

M/V

Hoe laat is het nu?

.....

Wat is je lengte in centimeters?

.....

Geef aan in hoeverre je het eens bent met onderstaande stellingen

	Helemaal mee oneens	Mee oneens	Beetje mee oneens	neutraal	Beetje mee eens	Mee eens	Helemaal mee eens
Ik ben goed in het weerstaan van verleidingen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vind het moeilijk om slechte gewoonten af te leren	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik ben lui	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik zeg vaak ongepaste dingen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik doe dingen waarvan ik weet dat ze slecht voor me zijn, als ze leuk zijn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik zou graag willen dat ik meer zelfdiscipline had	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ze zeggen dat ik een ijzeren zelfdiscipline heb	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plezier en lol staan mij soms in de weg wanneer ik dingen moet afmaken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik heb problemen met concentratie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik kan effectief toewerken naar lange termijn doelen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik kan soms niet met bepaalde dingen stoppen, zelfs als ik weet dat ze slecht zijn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik handel vaak zonder alle alternatieven mee te nemen in mijn overwegingen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik weiger dingen die slecht voor me zijn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hoeveel uur slaap je gemiddeld per dag? (per 24 uur?)

- ☐ minder dan 6 uur
- ☐ 6-8 uur
- ☐ meer dan 8 uur

Slaap je uit als je een vrije ochtend hebt?

- ☐ nooit
- ☐ heel soms
- ☐ soms
- ☐ vaak
- ☐ vrijwel altijd

Bedankt voor je medewerking!

## Appendix 2 – Follow up questionnaire

### Thesis MCB Unit Size & Sharing

Beste deelnemer, fijn dat je wilt bijdragen aan ons onderzoek! Gisteren kreeg je pepernoten als dank voor het meedoen aan mijn onderzoek. Hier heb ik nu een aantal vragen over. Er zijn geen goede of foute antwoorden, dus vul alles zo veel mogelijk naar waarheid in. Je gegevens worden anoniem verwerkt. Invullen duurt minder dan 5 minuten. Alvast zeer bedankt voor je medewerking aan mijn afstudeerproject! Anouschka

Wat is je voor- en achternaam (dit wordt enkel gebruikt om je vragenlijst van gisteren te identificeren, daarna word je naam verwijderd uit dataset)

.....

Hoe lekker vind je de pepernoten die je kreeg?

	1	2	3	4	5	6	7
helemaal niet lekker: heel erg lekker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Alle vragen die nog volgen zullen steeds gaan om de 24 uur nadat je de pepernoten van ons kreeg. Op welk tijdstip ontving je de pepernoten van ons? Maak een inschatting.

\_\_\_\_\_ Tijdstip ontvangst

Geef je tijdsbesteding gedurende de dag hieronder aan. Hoeveel uur van de 24 uur nadat je de kruidnoten hebt ontvangen was je...

\_\_\_\_\_ alleen

\_\_\_\_\_ met vrienden, bekenden of medestudenten; zonder mijn kruidnoten mee te hebben

\_\_\_\_\_ met vrienden, bekenden of medestudenten; ik had mijn kruidnoten mee

We zijn benieuwd wat er van de kruidnoten is opgegeten en overgebleven. Geef per optie het juiste percentage aan. Het totaal moet 100% zijn.

\_\_\_\_\_ % zelf opgegeten

\_\_\_\_\_ % overgebleven

\_\_\_\_\_ % uitgedeeld

Je geeft aan dat je een deel van de kruidnoten hebt uitgedeeld. Waarom heb je dit gedaan?

.....



Met hoeveel mensen heb jij je kruidnoten gedeeld? Maak een inschatting als je het niet zeker weet.

\_\_\_\_\_ aantal mensen

Heb je dit in één keer uitgedeeld of verspreid over meerdere keren?

- ☐ in een keer
- ☐ in twee keer
- ☐ twee keer of meer

Binnen hoeveel uur nadat je de kruidnoten kreeg heb je voor het eerst iets uitgedeeld? Maak een inschatting.

\_\_\_\_\_ direct toen ik ze kreeg

Terugdenkend op de hoeveelheid pepernoten die je gegeten hebt, hoe denk je daarover? Ik vind dat IK....

	Helemaal mee oneens	Mee oneens	Een beetje mee oneens	Neutraal	Een beetje mee eens	Mee eens	Helemaal mee eens
Gulzig was	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De verleiding van pepernoten niet kon weerstaan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Over weinig zelfdiscipline beschikte	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geen 'nee' kon zeggen tegen pepernoten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moeite had om te stoppen met het eten van pepernoten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Te veel gesnackt heb	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Wat vind je van de hoeveelheid pepernoten die je gegeten hebt?

- ☐ Veel te weinig
- ☐ Te weinig
- ☐ Precies genoeg
- ☐ Te veel
- ☐ Veel te veel

Geef antwoord op de volgende vragen.

	Nooit	Zelden	Soms	Vaak	Heel vaak
Wanneer je iets zwaarder bent geworden, eet je dan minder dan dat je gewoonlijk doet?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Probeer je minder te eten tijdens maaltijden dan dat je eigenlijk zou willen?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hoe vaak weiger je eten of drinken, omdat je bang bent dat je zwaarder wordt?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Houd je exact bij wat je eet?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eet je opzettelijk producten waarvan je afvalt?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wanneer je teveel hebt gegeten, eet je dan de daarop volgende dagen minder?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eet je opzettelijk minder om te voorkomen dat je zwaarder wordt?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hoe vaak probeer je geen tussendoortjes te nemen, omdat je op je gewicht let?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hoe vaak probeer je 's avonds niet te eten, omdat je op je gewicht let?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Houd je rekening met je gewicht wanneer je eet?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Wat is je gewicht in kilo's? (Nogmaals, deze vragenlijst is geheel anoniem)

\_\_\_\_\_ Gewicht

Aan Wageningen Universiteit worden vaker studies verricht waarvoor wij op zoek zijn naar deelnemers. Mogen wij je hiervoor af en toe (maximaal 1 keer per maand) benaderen per e-mail? Zo ja, schrijf hieronder je e-mailadres (alleen als je nog niet in ons bestand staat, niet-wur adres is ook goed).

Vink het onderstaande hokje aan indien je de resultaten van ons onderzoek wilt ontvangen per mail.

☐ Ik ben benieuwd naar de resultaten, stuur mij deze toe

Dit is het einde van de vragenlijst. Als je nog opmerkingen of vragen hebt, dan mag je deze hier invullen.

.....

Hartelijk dank voor je deelname aan het onderzoek! Klik op het pijltje naar rechts om de vragenlijst in te sturen.

### Appendix 3 – Self-perceived reasons for sharing

Following are the categories and then the answers of the question why people shared (some of their) indulgent snack. Since the interview was conducted in Dutch, the answers are in Dutch.

#### Sociale verplichting

- Mijn vriend is gek op kruidnoten!
- Dat is sociaal.
- Er kwamen vrienden op bezoek op het moment dat ik al bezig was met kruidnoten eten.
- Omdat ik samenwerkte met mensen.
- Ze lagen op tafel.
- Ik at ze meteen op samen met een jongen die ze ook had gekregen en toen hij zijn zakje op had kreeg hij nog een paar van mijn laatste paar omdat ik het niet sociaal vond om in mijn eentje te eten.
- Om anderen er een plezier mee te doen. In dit geval was het een vriend met wie ik naar een hoorcollege ging. Hij zou het vast ook wel lekker vinden en dat bleek zo te zijn.
- Gisteren tijdens de koffiepauze was ik met een vriendin koffiedrinken. Ik haalde daarbij mijn pepernoten tevoorschijn en zij gaf aan dat zij ze ook had maar deze boven te hebben laten liggen. Ik voelde me er slecht bij als ik in mijn eentje de pepernoten zou gaan zitten eten. En helemaal omdat zij aangaf er ook zin in te hebben, maar dat zij ze vergeten was. Een andere reden was dat zij ook nog wist dat ik nog een aantal zakjes in mijn tas had zitten waardoor het extra gierig zou overkomen als ik ze niet weg zou geven.
- Om sociaal te doen
- Omdat ik met studiegenoten aan het werk was en ik wel zin had in een kruidnootje. Vanzelfsprekend gaf ik mijn studiegenoten ook wat. Dus: Ik heb mijn kruidnoten uitgedeeld omdat ik een aardige jongeman ben.
- Ik was zelf aan het eten en mijn vrienden zaten erbij.
- Met vrienden gedeeld. We delen wel vaker dingen als snoep.
- Dat is aardig.

#### Gezellig

- Ik geniet er meer van als ik iets kan delen.
- Tijdens een saai computerpracticum was het een perfecte manier om even wat energie op te doen.
- Gezellig, delen is leuk
- Ik vind het leuk om iets uit te delen.
- Dan geef ik ze aan iemand die er op dat moment wel van geniet
- Ik houd niet van alleen eten
- Ik wilde ze graag delen.
- Omdat we anders in slaap vielen tijdens mijn college en dan is iedereen weer blij.
- Ik zat naast ze bij college en vond dat wel zo leuk: Van pepernoten word je vrolijk!
- Ik wist dat ze het leuk vonden om pepernoten te krijgen.
- Samen kruidnoten eten is leuker dan alleen.

### **Voorkomen teveel eten/afvallen ( oftewel preventiemethode)**

- Ik eet zelf vrij weinig snoep en tussendoortjes.
- Omdat kruidnoten niet gezond zijn en ik wil niet teveel ongezonde dingen op een dag eten.
- Ik word er dik van.
- Ik wil afvallen.
- Ik vond het geen goed idee alles zelf op te eten.

### **Veel zakjes, of gemak**

- Ze zaten toch in mijn tas.
- Er waren meer dan genoeg pepernoten om te delen.
- Het vroeg erom om uitgedeeld te worden.
- Het waren veel zakjes.
- Omdat ik meerdere zakjes had gekregen heb ik een deel aan mijn huisgenoten gegeven bij het theedrinken.

### **Vol zitten**

- Omdat ik na een paar kruidnoten vol zat, daarom heb ik de rest uitgedeeld.
- Ik kreeg het niet op.
- Ik hoefde ze niet allemaal zelf. Ik wist dat ik het zelf nooit op zou krijgen en mijn vrienden konden me hier dus goed mee helpen.
- Omdat ik ze niet allemaal zelf hoefde.

### **Niet heel lekker/geen zin in/allergie**

- Ik had niet zo'n trek in pepernoten.
- Ik vind chocoladepepernoten veel lekkerder dus ik ben een beetje verwend over normale.
- Ik ben allergisch voor noten en pepernoten zijn vaak in een fabriek gemaakt waar ook noten worden verwerkt.

### **Onbekende reden**

- Ik heb echt geen idee.
- Ik deel wel vaker als ik dingen mee heb. Niet bij stil gestaan waarom.