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Corona and Home Isolation: Effects on Eating Behavior and Perceived Obesogenicity of the Environment

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Abstract

As a result of the corona measures, for many people their homes have become the physical environment in which they now live *and* work or study. The present study investigated the effect of Corona and subsequent home isolation on the eating behavior of people and whether people perceive their home environment as more or less *obesogenic* than the environments they find themselves normally in. More specifically, it was examined whether perceived obesogenicity affects perceived self-efficacy and the intention to eat healthy. Cross-sectional analyses were used to explore changes in eating behavior and to examine relations between the variables. Descriptive statistics of 210 participants showed that there was much division in the degree to which the home environment affected the eating behavior of people, either positively or negatively. Moreover, findings showed a negative relation between perceived obesogenicity of the environment and the intention to eat healthy, a relation that was fully mediated by perceived self-efficacy. In other words, perceiving the home environment as *more* obesogenic led to less self-efficacy, which in turn led to less intention to eat healthy. This was in line with expectations. The findings of this study show profound implications for future interventions, where changing people's home environment would be a valuable way to mitigate possible negative effects of working and/or studying from home and to prevent the development of unhealthy eating habits. However, future research is needed to investigate individual differences and causal relationships.

Keywords: COVID-19, eating behavior, nutrition, obesogenic environment, home isolation

Introduction

The rapid spread of COVID-19, an infectious disease caused by the coronavirus, has sparked alarm worldwide. The World Health Organization (WHO) has declared the coronavirus outbreak a pandemic (NOS, 2020), and as the number of coronavirus cases grows, unprecedented measures are being taken all over the world to contain the spread. The Dutch government has also taken far-reaching measures in the fight against the coronavirus: schools, universities, and businesses have been shut down; large gatherings of people are banned; and the population is strongly recommended to work from home and avoid social contact as much as possible (NOS, 2020). People now spend little time in public spaces, stopped traveling, no longer meet with others and for many their homes have become the physical environment in which they now live *and* work or study. This change of physical environment, also referred to as a situation of ‘home isolation’, has large implications on people’s personal lives. One area that could be affected is the eating behavior of people. This thesis will explore how people perceive this new physical environment and what effect home isolation has on the eating behavior of people.

Impact of the environment on eating behavior

Eating behavior is habitual, learned, and ingrained over years and therefore not subject to many changes (Orbell & Verplanken, 2010). However, research also shows that the environment in which people find themselves - for example the home, school, neighborhood, workplace, canteen, (petrol) station, or the supermarket - can have a major impact on people’s dietary behavior (Voedingscentrum, n.d.). Dietary behavior refers to “the eating patterns people engage in, and includes the nature, quality, variety, and quantity of food consumed, how it is prepared as well as aspects related to the choice of food products, meal timing, and composition” (Marijn Stok et al., 2018). A healthy diet is essential for good health and nutrition and protects people against many chronic diseases, such as heart disease, diabetes, and cancer (Guh, Zhang, Bansback, Amarsi, Birmingham, & Anis, 2009). The environment in which people find themselves often determines directly whether healthy behavior is possible (Ball, Timperio, & Crawford, 2006). These environments changed in the past decades in such a way that they are characterized by essentially unlimited supply of convenient, relatively inexpensive, highly palatable, energy-dense foods, coupled with a lifestyle requiring only low levels of physical activity (Hill & Peters, 1998). Such an environment is referred to as an *obesogenic* environment, meaning “the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations” (Swinburn,

Egger, & Raza, 1999). That is to say, it represents an environment that stimulates people to eat too much and exercise too little.

Several environmental factors changed over the years that promote unhealthy eating behavior, contributing to the obesogenic environment (Voedingscentrum, n.d.). For example, there is increased availability and accessibility of (high-caloric) food, which can be perceived as more difficult to resist and therefore can trigger the likelihood of eating (Schüz, Bower, & Ferguson, 2015; Schüz, Schüz & Ferguson, 2015). Moreover, larger portion sizes are offered and there is frequent use of food advertisements, using price marketing strategies to entice consumers to buy larger quantities and more products, influencing community dietary intake (Voedingscentrum, n.d.; Elliston, Ferguson, Schüz, & Schüz, 2017). These changes occurred in the environments at the community scale, the so-called *food landscapes* (Guptill & Wilkins, 2002), and influence the food in a multitude of ways, like the number and type of food outlets available, existence and forms of fast-food restaurants, the presence of beverage outlets, and so on (Sobal & Wansink, 2007).

However, the obesogenic characteristics of an environment can also manifest on a so-called *microscale* - like the home environment - involving small-scale foodspaces such as the 'kitchenscape', one form of roomscape that offers bounded settings for food consumption (Sobal & Wansink, 2007). These microscale "-scapes" appear less grand than community food landscapes, but they influence nutrient and calorie intake and have an impact on subsequent health as well (Sobal & Wansink, 2007), like through the increased salience and visibility of foods (Painter, Wansink, & Hieggelke, 2002). For example, Ferriday and Brunstrom (2011) found that food-cue exposure increases rated desire to eat, prospective (planned) portion size of a cued food and salivation. In summary, the environment impacts people's eating behavior in multiple ways, both on the 'macro' scale and 'micro' scale.

In the current situation people spend most of their time in their domestic environment due to the corona-outbreak and the measures taken. This is a radical change from the normal situation, in which people spend most of their day elsewhere: at work, school, on the way, or other places outside of the house. The first goal of this study is to explore whether people's self-reported eating behavior has changed, due to the changed environment, compared to the situation before the corona-outbreak. Because of the uniqueness of the current situation, little extensive, peer-reviewed, and/or replicated research has been done on this specific topic. However, some parallels between the extended home confinement and the literature on holiday and vacation weight gain can be drawn, having a deviation from usual routines (Bhutani & Cooper, 2020) and a change of the environment in which people spend their day in common.

These studies generally show that holidays often lead to weight gain (Cooper & Tokar, 2016) and that the main driver for this phenomenon is changes in eating behavior (Bhutani, Wells, Finlayson, & Scholler, 2020). Moreover, prior studies that investigate eating behavior suggest that availability of food, observing others eat (Schüz, Schüz, & Ferguson, 2015), and easy access to energy-dense foods (Elliston, Furgeson, Schüz, & Schüz, 2017), which is likely in the current situation, increase the likelihood of greater energy intake. Conversely, being alone and social isolation has also been associated with increased eating (Mason, Heron, Braitman, & Lewis, 2016). However, results from these studies cannot simply be carried over indiscriminately to the current situation, and parallels should be drawn with caution. Eating behavior is a complex concept that is affected in many different ways and there are individual differences in the effects of the environment on people's eating behavior (Schüz, Schüz, & Elliston, 2016) and the reactivity to certain food cues (Ferriday & Brunstrom, 2011).

Some articles have been published recently, investigating people's buying, cooking, and eating behavior since the corona-outbreak, that delineate a slightly different picture. For example, a study of the Volkskrant and Ipsos (Clercq, 2020) shows that a large majority of the respondents (73 percent) did not change anything regarding their eating behavior. In addition, the Dutch Nutrition Centre (Voedingscentrum, 2020) started a similar study and also showed that the majority of the respondents (83 percent) did not eat differently after the coronavirus measures came into effect. 70 percent of the people did not eat more or less than before, and 73 percent did not eat more often than other times (Voedingscentrum, 2020). Based on these results, it can be expected that for the majority of people, actual eating behavior has not really changed, apart from some minor changes. In the studies, however, it was not investigated how people *perceive* the changed environment in relation to their eating behavior.

The second goal of this study is to investigate whether people feel a change in perceived *obesogenicity* of their environment, and if so, in what direction. Do people experience their domestic environment either as more *stimulating* in following a healthy diet, for example because they are less affected by the aforementioned 'food landscapes' outside the home? Or do they experience it as more *hindering*, because of temptations in 'microscale-scapes', where the food at home may be more in sight and therefore easily accessible and tempting?

Few studies have investigated 'perceptions' of the environment and its association with dietary behavior (Moore et al., 2013), let alone in this particular situation. Most studies focus on objective measures of obesogenic environments, for example through measurement of food availability in the home (Bryant & Stevens, 2006), or through experiments that measure effects of accessible foods on actual behavior (Sobal & Wansink, 2007). Moreover, most research done

on this topic has focused on the home environment of children and adolescents (Rendina & Campanozzi, & De Filippo, 2019) or on the comparison between environments of overweight and normal-weight adults (Gorin, Phelan, Raynor, & Whing, 2011), representing discussions of the environmental determinants of obesity as an outcome (Holsten, 2009). This study will not focus on this distinction or objective measures but will rather investigate people's perceptions and the way people *perceive* the change of environment.

In addition to studying perceived change in the obesogenicity of the environment, it would be interesting and fruitful to investigate whether this change also influences important determinants of health behavior. One important variable mentioned in health behavior theories that predict a person's behavior is his/her *intention* to perform this particular behavior (e.g., Ajzen, 1985; Rogers, 1983; Fishbein & Ajzen, 1975). Intentions are self-instructions to perform particular behaviors or to achieve certain outcomes (Triandis, 1979), and often have the form of "I intend to do X!". Ajzen (1991) defines *intention* as "a person's motivation, willingness to exert effort, and willingness to try hard to enact the behavior". Several meta-analyses show that intentions are reliably associated with behavior (e.g., Armitage and Connor, 2001; Ajzen, 1991; Trafimow, Sheeran, Connor, & Finlay, 2002). Despite the so-called *intention-behavior gap*, describing the phenomenon that intentions do not guarantee behavior (Webb & Sheeran, 2006), the meta-analysis of Sheeran (2002) also shows that a disinclined intention or the lack of a positive intention often is in line with subsequent behavior. In other words, if people lack the intention to maintain a healthy diet, it is highly conceivable that people will eventually not follow a healthy diet. In the current situation it is therefore important to investigate to what extent people still have the intention to eat healthy and whether this intention is affected by the way people experience their situation (i.e., as more or less obesogenic). There is little research that investigated this particular relationship. However, the study of Michaelidou, Christodoulides & Torova (2012) showed that *physical barriers* (such as time or availability) were a significant predictor of the respondent's inhibition of intention. It may be that people in the current situation also experience these barriers, leading to an inhibited intention to eat healthy.

Another important and much-studied factor that is a powerful predictor for intentions is *perceived self-efficacy* (Aritage & Conner, 1999; Garcia & Mann, 2003), a component of Bandura's Social Cognitive Theory (1986) that is defined as an individual's perceived ability to perform a behavior. More specifically, it refers to "beliefs about one's own capability to accomplish a certain task by one's own actions and resources even in the face of obstacles or barriers" (Sniehotta, Scholz, & Schwarzer, 2005). Health-specific self-efficacy is "a person's

optimistic self-belief about being capable to resist temptations and to adopt a healthy lifestyle” and has a significant relation with the adoption and conservation of corresponding health behaviors (Schwarzer & Renner, 2009). The development of these efficacy beliefs is, among other things, affected by the environment (Wood & Johnson, 2016), where our own attempts to control our environments are primary elements for self-efficacy information (Bandura, 1997). Self-efficacy for certain behavior or a certain domain will be strengthened when people experience successful attempts at control which they attribute to their own efforts (Wood & Johnson, 2016). The study of Scholz, Nagy, Göhner, Luszczynska, & Kliegel (2009) showed that a change in self-efficacy was an important predictor of a change in intentions. Someone who lacks confidence in being able to implement certain behavior is also less likely to form a behavioral intention (Luszczynska, Scholz, & Schwarzers, 2005). The intention to perform certain health behavior is thus to some degree dependent on a firm *belief* that one has in their capability to exercise control over that behavior (Renner & Schwarzer, 2005). Individuals who believe themselves incapable of successfully continuing dieting (such as the presence of highly palatable food) may choose to end dietary restriction temporarily (Polivy & Herman, 1985). To our knowledge there is no research on the effects of perceived obesogenicity of the environment on feelings of self-efficacy. However, it is plausible that if people feel that their environment has changed to a more obesogenic environment - making it *harder* to follow a healthy diet - feelings of self-efficacy may decrease.

The present study

The purpose of the present study is to examine the effects of the changed physical environment, due to the corona-outbreak and the additional home isolation, on the perceived *obesogenicity* of the environment and its relation with perceived self-efficacy and the intention to eat healthy. Moreover, this study will explore changes in eating behavior. This is one of the first studies into the effects of the corona-outbreak and home isolation on eating behavior and its relation to the changed environment. It is important to investigate this because good nutrition is crucial for healthy, particularly in times when the immune system might need to fight back (World Health Organization, 2014). Moreover, previous research shows that small changes in body weight in relatively short time periods can become permanent and lead to substantial weight gain over time (Schoeller, 2014). Given the long-term consequences of an unhealthy diet and the uncertainty of the duration surrounding the current situation, it is important to explore this topic and to make sure that people continue to value a healthy diet.

Results from this study can provide interesting insights into how people are engaged in healthy eating in these tense times and the way they perceive the changed situation as

promoting or hindering their healthy eating behavior. Achieving such understanding can inform the kinds of interventions that will help people cope effectively with the current situation or similar ones.

The research question that will be answered in this thesis is: “To what extent do people perceive the changed physical environment - due to the corona-outbreak and additional home isolation - as more or less *obesogenic*; does this predict the intention to eat healthy; and is this relation mediated by perceived self-efficacy?”. It is expected that people who experience the physical environment as *more* obesogenic will be less intended to eat healthy (*Hypothesis 1*) and have less perceived self-efficacy to eat healthy (*Hypothesis 2*) than people who perceive the changed environment as *less* obesogenic, indicating negative relationships between perceived obesogenicity and intention and perceived obesogenicity and self-efficacy. Moreover, it is expected that perceived self-efficacy is positively related to the intention to eat healthy (*Hypothesis 3*) and that perceived self-efficacy mediates the relation between perceived obesogenicity of the changed physical environment and the intention to eat healthy (*Hypothesis 4*).

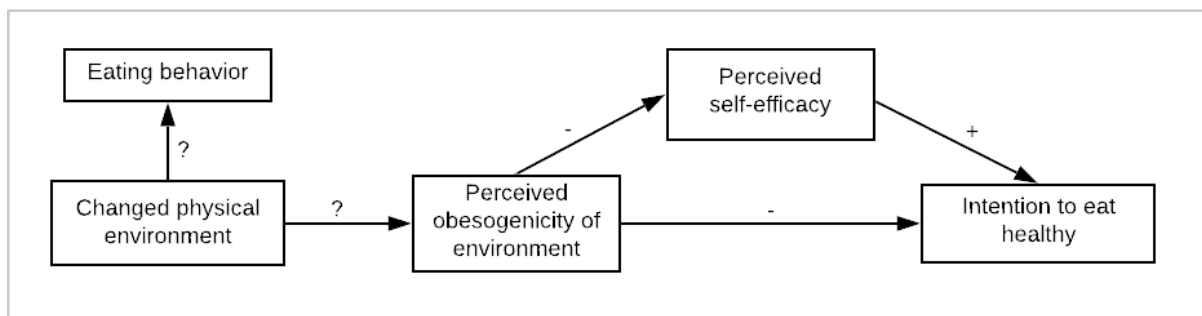


Figure 1. Conceptual model

Method

Participants

Based on a priori power analysis in G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) for a linear multiple regression, a necessary sample size of 107 to reach a power of 0.95 was needed. In total, 391 participants took part in this study. However, 98 participants did not fit the inclusion criteria of *currently working and/or studying from home, different from their situation before the corona measures* and were therefore excluded from the dataset. Moreover, 81 participants were eliminated from the main analyses because they did not complete the whole survey. Eventually, a final sample of 210 participants was included in the analysis. The participants had a mean age of $M = 34.11$ ($SD = 13.27$, range = 19-79) and the sample consisted of 173 females ($M = 33.91$, $SD = 13.36$) and 37 males ($M = 35.05$, $SD = 12.98$). See Appendix A for more descriptive details.

Procedure and design

For this cross-sectional study, participants were recruited via the LinkedIn and Twitter of the Voedingscentrum and from the social network of the researcher. Participants self-selected into the study and completed a 15-minute survey. Data was collected from May 12th through May 18th of 2020. The requirement of the recruited participants was that they, as a result of the corona measures, now mainly work and/or study from home, different from their situation before the corona measures. This requirement was in place so that it could be stated with greater certainty that any changes in eating behavior came from the change in the participants' physical environment. This study was conducted using Qualtrics online software. After opening the link to the questionnaire, all the participants had to complete an informed consent form in which their voluntary participation and the anonymity of their information was emphasized. A question followed to assure all participants fit the inclusion criteria.

The current study used a cross-sectional design to measure the relationship between the independent variable *perceived change in obesogenicity of environment*, mediating variable *perceived self-efficacy* and the dependent variable *intention to eat healthy*. All three variables were measured on an ordinal scale.

Materials

Demographic information was obtained at the end of the survey. Participants were asked to fill out their age, gender, length (in centimeters), weight (in kilograms), educational level, living situation and the labor sector in which they work and/or study.

Perceived change obesogenicity of environment was assessed using the self-developed scale PCOE-11 (i.e., perceived change of obesogenicity of environment). The scale consisted

of 11 items (e.g., “Now that you are more at home, are you more or less tempted to eat unhealthy food?” and “Now that you are more at home, are you exposed to unhealthy food more or less often?”). Questions could be answered on a 5-point Likert scale, either from 0 = ‘much less’ to 5 = ‘much more’ or from 0 = ‘much easier’ to 5 = ‘much more difficult’. To perform the analyses, items 4 and 6 should be reversed. Reliability of the scale was high, with a Cronbach’s α of .854. An examination of the questionnaire item-total statistics indicated that alpha would increase to .857 if item 4 (“Is healthy food, now that you are more home, more or less available?”). Because of the minimal difference, it was decided not to exclude the question from the scale.

Intention to eat healthy was assessed with three items (i.e., “I plan to eat healthy next week”, “I will eat healthy next week” and “I intend to eat healthy next week”). Subjects responded on a 7-point Likert scale (1 = totally disagree, 7 = totally agree) to what extent statements applied to them. The scale proved highly reliable with a Cronbach’s α of .906.

Perceived Self-Efficacy was measured with three items (i.e., “I am sure I can eat healthy next week”, “I will be able to eat healthy next week” and “I am confident that I can eat healthy next week”). Questions could be answered on a 7-point Likert scale (1 = totally disagree, 7 = totally agree) to what extent statements applied to them. The scale proved highly reliable with a Cronbach’s α of .950.

Changes in eating behavior were measured by several items questioning relevant determinants of eating behavior, such as the attitude towards healthy eating (e.g., “In the current situation, do you think it is more or less important to eat healthy?”), social influences (i.e., “How does the change in social situation, due to the corona measures, affect your eating behavior?” and “How does your home situation (e.g., family, housemates or living alone) affect your eating behavior since the corona measures?”), motivation (e.g., “I feel motivated to eat healthy next week”, with answer options from ‘totally disagree’ to ‘totally agree’), and questions indicating actual change in eating behavior (e.g., “In general, have you eaten healthier, just as healthy or less healthy in recent weeks, compared to before?” and “Compared to the situation before the corona measures, have you eaten at more or less times during the day than before?”).

Statistical Analyses

The statistical analyses were performed using IBM SPSS Statistics 25.0. To investigate the underlying structure of PCOE-11 in the sample, an exploratory factor analysis was performed. To test the hypotheses that PCOE has a negative relation with intention and perceived self-efficacy, and perceived self-efficacy has a negative relation with intention,

simple linear regressions were conducted. To estimate the proportion of variance in intention to eat healthy accounted for by PCOE and self-efficacy, a multiple linear regression analysis was performed. Mediation analyses were performed using an add-on procedure named *Process*, developed by Hayes (2013). Hayes's model was used and bootstrapped 5,000 times to derive total, direct and indirect effects, with PCOE as independent variable, perceived self-efficacy as mediating variable and intention to eat healthy as dependent variable. Lastly, the analysis of other variables regarding eating behavior, such as behavior, social influences, motivation and attitudes, were analyzed using descriptive statistics.

Results

Changes in eating behavior

Respondents generally indicated that before the corona measures they found it quite important to eat healthy ($M = 8.03$, $SD = 1.12$), and generally succeeded well in doing this ($M = 7.23$, $SD = 1.22$). The majority of respondents (70%) indicated that in the current situation they find it as important to eat healthy as before. 28,1 find it more important now and less than 2% find it less important to eat healthy compared with the situation before the corona measures. When asking about actual behavior, there is more division. 44,3% of the respondents reports that they continued to eat the same as before, whereas 32,4% state that they eat healthier and 23,3% less healthy compared to before. The question of whether people found it easier or more difficult to eat healthy now shows a fairly even distribution. 31,9% of the respondents find it easier to eat healthy, another 31,9% find it as easy or difficult as before and 36,2% find it more difficult to eat healthy. Regarding how much people eat, the majority of the respondents said they eat the same amount (61%), and a smaller proportion said they eat more (24,3%) or less (14,8%) than before. Moreover, 39,5% of respondents indicated that they now eat at more times during the day, 41,4% at the same number of times, and 19% at fewer times.

Concerning the change of the social situation (i.e., social isolation), a minority of people indicated that the changed social situation makes it harder for them to eat healthy (21,9%), whereas 38,1% and 40% respectively indicated that the change makes it easier for them or has no impact on their eating behavior. Finally, questions were asked about the influence of the home situation (e.g., parents, housemates, or living alone) on people's eating behavior. 44,8% of the respondents indicated that during the corona measures the home situation does not influence their eating behavior. Answers of other respondents are more or less equally distributed: 27,1% point out that the home situation makes it easier for them to eat healthy and 28,1% indicate that the home situation makes it harder for them to eat healthy. This thesis mainly focusses on the changed environment that people spend most of their day (i.e., their home), and the way they perceive this new environment in relation to their eating behavior, for example concerning temptation to snacking or availability and exposure of (un)healthy food. This is questioned with the PCOE-11 scale. See Appendix B for an overview of the answers to the questions of this scale.

Factor analysis

To investigate the underlying structure of PCOE-11 in the sample, the eleven items of the instrument were subjected to an exploratory factor analysis with oblique rotation (promax). Prior to running the principal axis factoring, examination of the data indicated that most, but

not all, of the items were normally distributed. Given the robust nature of factor analysis, these deviations were not considered problematic. Furthermore, the relationships between pairs of variables were generally linear. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .79. Barlett's test of sphericity $\chi^2(15) = 523.77$, $p = .000$, indicating that correlation structure is adequate for factor analyses. The maximum likelihood factor analysis with a cut-off point of .50 and the Kaiser's criterion of eigenvalues greater than 1 (see Field, 2009) yielded a two-factor solution as the best fit for the data, accounting for around 53% of the variance (see Appendix C). This seemed to be about the distinction between questioning *healthy eating* or *unhealthy eating*. Based on this distinction, five questions with factor loading $>.6$ on factor 1 ('unhealthy') and three questions with factor loading $>.6$ on factor 2 ('healthy') remained. A total of three items were eliminated from the scale.

A final principal component factor analysis of the remaining eight items, using promax rotations, was conducted, with the two factors explaining 65% of the variance. All items in this analysis had primary loadings over .6. The factor loading matrix for this final solution is presented in Table 1 and descriptives for the scales and the other variables in Table 2.

Table 1

Factor loadings based on a principal analysis with promax rotation for eight items from Perceived Change Obesogenicity of Environment questionnaire

Item	Loadings	
	Factor 1 _a	Factor 2 _b
3. Now that you are more at home, is unhealthy food more or less available?	.90	
2. Now that you are more at home, are you more or less exposed to unhealthy food?	.85	
1. Now that you are more at home, are you more or less tempted to eat unhealthy food?	.80	
7. Now that you are more at home, are you more or less tempted to snack unhealthy?	.77	
6. Now that you are more at home, is it easier or more difficult to eat unhealthy food?	.68	

4	Now that you are more at home, is healthy food more or less available?	.90
10	Now that you are more at home, does your social environment makes it easier or more difficult for you to eat healthy?	.73
11	Now that you are more at home, do you find it easier or more difficult to eat healthy?	.61
Percentage of Variance:		50.8% 14.3%

Note. a = ‘unhealthy’; b = ‘healthy’. Factor loadings <.5 have been suppressed.

Table 2

Descriptive statistics for variables Intention, Self-Efficacy, PCOE-11 and the two PCOE factors Unhealthy and Healthy (N = 210)

	No. of items	M (SD)	Skewness	Kurtosis	Cronbach’s α
Intention	3	5.90 (.90)	-1.24	2.65	.91
Self-efficacy	3	5.55 (1.15)	-1.29	2.24	.95
PCOE-11	11	2.99 (.90)	-.39	.09	.85
PCOE_unhealthy	5	3.16 (.86)	-.30	.12	.86
PCOE_healthy	3	2.77 (.69)	-.28	-.14	.68

Testing hypotheses

The analyses showed that only perceived obesogenicity of the environment for healthy eating (PCOE_healthy) and PCOE-11 had a significant relationship with intention, perceived obesogenicity of the environment for unhealthy eating (PCOE_unhealthy) did not. For this reason, it was decided to include only subscale PCOE_healthy in the results section. See Appendix D for results for PCOE-11 and Appendix E for results for PCOE_unhealthy.

To analyze the relation between PCOE_healthy and self-efficacy and between self-efficacy and intention, simple linear regressions were performed. To estimate the proportion of variance in intention to eat healthy accounted for by PCOE_healthy and self-efficacy, a multiple linear regression analysis was performed. Before interpreting the results of the regression analyses, several assumptions were evaluated, such as normal distribution; univariate outliers; normality; linearity and homoscedasticity of residuals; multivariate outliers; and multicollinearity (Allen, Bennett & Heritage, 2014). Intention and self-efficacy were not

perfectly normally distributed and univariate outliers were identified: four out-of-range values for intention and two for self-efficacy. Analyses were performed with and without outliers and this did not reveal major differences. Based on this, it was decided not to exclude the outliers, considering it as relevant to include data from participants with relatively high or low values on intention and self-efficacy. Moreover, the not-perfectly normally distribution was not considered problematic.

The first hypothesis was tested using a simple linear regression that used intention as the dependent variable and PCOE_healthy as the independent variable. The results of this analysis show that PCOE_healthy accounted for a significant 5% of the variability in intention to eat healthy, $R^2 = .05$, adjusted $R^2 = .05$, $F(1, 208) = 10.91$, $p = .001$. This means that the first hypothesis can be confirmed. The second hypothesis was also tested with simple linear regression, using perceived self-efficacy as the dependent variable and PCOE_healthy as the independent variable. PCOE_healthy significantly predicted perceived self-efficacy, $R^2 = .121$, Adjusted $R^2 = .117$, $F(1, 208) = 28.61$, $p = .000$, which means that the second hypothesis can also be confirmed. Moreover, perceived self-efficacy significantly predicted intention, $R^2 = .39$, Adjusted $R^2 = .38$, $F(1, 208) = 130.56$, $p = .000$. Therefore, hypothesis 3 can also be confirmed.

Table 3

Unstandardised (B) and standardized (β) Regression Coefficients and Squared Semi-Partial Correlations (sr^2) for PCOE in a Regression Model Predicting perceived self-efficacy.

Variable	B [95% CI]	β	sr^2
PCOE	-.58 [-.80, -.37]	-.35	.12

Note. N = 210. CI = confidence interval.

* $p < 0.05$. ** $p < .01$

Table 4

Unstandardised (B) and standardized (β) Regression Coefficients, and Squared Semi-Partial Correlations (sr^2) for perceived self-efficacy in a Regression Model Predicting intention

Variable	B [95% CI]	β	sr^2
Perceived self-efficacy	.49 [.402, .559]	.57	.01

Note. N = 210. CI = confidence interval.

* $p < 0.05$. ** $p < .01$

In combination, PCOE_healthy and perceived self-efficacy accounted for a significant 38,6% of the variability in intention to eat healthy, $R^2 = .39$, adjusted $R^2 = .38$, $F = (2, 207) =$

64.98, $p = .000$. PCOE_healthy cannot account for intention beyond that which can also be explained by perceived self-efficacy. PCOE_healthy therefore is a non-significant predictor, $t(207) = -.144$, $p = .886$. Perceived self-efficacy is a significant predictor, $t(207) = 10.64$, $p = .000$.

Table 5

Unstandardised (B) and standardized (β) Regression Coefficients and Squared Semi-Partial Correlations (sr^2) for Each Predictor in a Regression Model Predicting Intention to eat healthy.

Variable	B [95% CI]	β	sr^2
Perceived self-efficacy	.48 [-.16, 0.14]**	.62	.34
PCOE_healthy	-.01 [.39, 0.57]	-.01	.00

Note. N = 209. CI = confidence interval.

* $p < .05$. ** $p < .01$

To test hypothesis 4, whether the relation between PCOE_healthy and intention is mediated by perceived self-efficacy, a mediation analysis was carried out. Model 4 in the Process macro (Hayes, 2013) was used to conduct this mediation analysis. The model generated bias corrected 95% bootstrap confidence intervals for the indirect effects using 5,000 bootstrap samples. As Figure 2 illustrates, the relationship between PCOE_healthy and intention was significant with a p-value of .001 ($t = -3.30$, $b = -.29$). Moreover, the relationships between PCOE_healthy and perceived self-efficacy ($p = .000$, $t = -5.35$, $b = -.58$) and perceived self-efficacy and the intention to eat healthy ($p = .000$, $t = 10.64$, $b = .48$) were significant. There was a significant indirect effect of PCOE_healthy on the intention to eat healthy, $ab = -.28$, BCa CI [-.41, -.16]. In other words, the effect of PCOE_healthy on the intention to eat healthy was fully mediated by perceived self-efficacy. Hypothesis 4 can therefore also be confirmed.

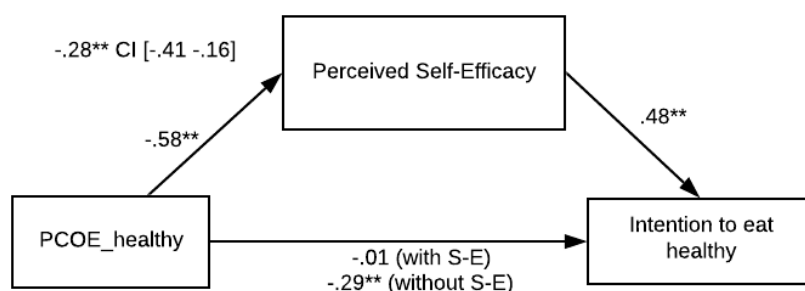


Figure 2. Standardized regression coefficients for the relationship between PCOE_healthy and intention to eat healthy mediated by perceived self-efficacy.

Discussion

The first aim of this study was to investigate the effect of the corona measures and the subsequent home isolation on the eating behavior of people. Certain parallels with previous research into eating behavior in relation to vacation, social isolation or food availability would suggest that eating behavior would change negatively for most people. However, based on recently published articles (e.g., Voedingscentrum, 2020; Clercq, 2020) it was expected that – apart from minor changes – for the majority of people eating behavior did not really change.

Firstly, people's attitude towards healthy eating was questioned and results showed that almost all respondents find it as important or more important to eat healthy in the current situation, compared with the situation before the corona measures. Based on all questions related to possible differences in eating behavior, it is not clear whether the current situation causes people to eat healthier or less healthy. Groups of similar sizes indicate different effects of Corona and subsequent home isolation on eating behavior. Some people find it more difficult to eat healthy in the current situation and experience a negative change in their eating behavior. However, groups of similar size indicate that they either find it easier and experience a positive change in their eating behavior or do not notice any difference. This shows that there are many individual differences between people in relation to eating behavior and the degree to which this is influenced (Schüz, Schüz, & Elliston, 2016), either positively or negatively.

The second goal of this study was to examine whether people perceive the domestic environment as more or less *obesogenic* than the environments they usually find themselves in (e.g., at work or school), whether this has an effect on people's intention to eat healthy and whether this relationship is mediated by self-efficacy. It was expected a negative relationship between perceived obesogenicity of environment (i.e., perceiving the environment as *more* obesogenic) and the intention to eat healthy would be found, with perceived self-efficacy as mediating variable.

To assess perceived change of obesogenicity of the environment, the PCOE-11 scale was created. An exploratory factor analysis was performed to investigate the underlying structure of the scale. The analysis revealed two underlying factors, characterizing questions about perceived obesogenicity regarding 'healthy eating' or 'unhealthy eating'. Analyses were performed with both factors, which showed that significant relations between perceived obesogenicity and intention were only found for the factor 'healthy eating' or for the complete PCOE-11 scale, not for the factor 'unhealthy eating'. In other words, people that perceived the environment as more obesogenic in the hindrance of eating *healthy*, had a significant negative relation with the intention to eat healthy. People that perceived the environment as more

obesogenic in the stimulation to eat *unhealthy*, did not show a negative relation with the intention to eat healthy. A possible explanation for this is that people distinguish between the intention to 'eat healthy' (i.e., increase healthy food intake) and the intention to 'not eat unhealthy' (i.e., decrease unhealthy food intake), and that only feelings of more obesogenicity concerning the hindrance of eating healthy lead to a decrease in intention to eat healthy (Louis, Chan, & Greenbaum, 2009). However, this is speculative and should be investigated in future research.

Results showed that people who perceive the changed physical environment as *more* obesogenic were less intended to eat healthy and experienced less self-efficacy. The mediational analysis showed that the relation between perceived change of obesogenicity of the environment and the intention to eat healthy was indeed mediated by perceived self-efficacy. Perceived self-efficacy therefore underlies the observed relationship between perceived change of obesogenicity of the environment and the intention to eat healthy. When adding perceived self-efficacy to the model, the significance of the relation between perceived obesogenicity of environment and the intention to eat healthy disappeared, illustrating full mediation. All hypotheses could thus be confirmed.

Results have, on the one hand, shown that some people indeed perceive their home environment as more obesogenic than the physical environments they find themselves normally in and that this subsequently has an effect on perceived self-efficacy and the intention to eat healthy, two important predicting factors for health behavior (e.g., Webb & Sheeran, 2002; Aritage & Connor, 1999). Findings for the positive relation between perceived self-efficacy and the intention for health behavior are consistent with findings from previous studies (e.g., Scholz, Nagy, Göhner, Luszczynska, & Kliegel, 2009, Luszczynska, Scholz, & Schwarzer, 2005). The negative relations between perceived obesogenicity and self-efficacy, and between obesogenicity and the intention to eat healthy, has been studied less and provides a fairly new insight. However, these relations are not surprising. Gase, Glenn and Kuo (2016) investigated the relation between perceived accessibility of food in the environment (one of the obesogenic factors included in this study) and healthy eating behavior and showed a positive relation that was partly mediated by self-efficacy. The current study investigated intention rather than actual behavior, but these concepts are closely related (Webb & Sheeran, 2006), and were therefore likely to show the same results.

Limitations and suggestions for future research

This study knows several limitations. Firstly, the sample consisted mainly of highly educated women, impacting the generalizability of the outcomes. Research shows that

education level explains differences in dietary habits (Johansson et al., 1999; Growth, Fagt, & Brondsted, 2001). A higher educational level is commonly associated with a higher socioeconomic status, which in turn has been related to a better diet quality (Darmon, & Drewnowski, 2015). Future research should make sure to use a representative sample and investigate possible differences between different educational levels.

Furthermore, it is important to consider the key limitation of using a cross-sectional design (Solem, 2015). The current study hypothesized a causal relationship between perceived change of obesogenicity of environment, the intention to eat healthy and perceived self-efficacy. However, these variables were assessed at the same time. It can therefore not be claimed that the change in perceived obesogenicity *caused* change in perceived self-efficacy, which in turn *caused* a change in intention. It could also be the other way around: Bandura (1997) states for example that purposive performance or ‘mastery experience’ with certain behavior is a source of self-efficacy beliefs. In line with this, the current study only included participants who currently work and/or study from home as a result of the corona measures. Due to the absence of a control group, it cannot be stated with certainty that changes have occurred due to changes in the environment. Dietary changes could also possibly have occurred due to other factors that were not included in the current study, such as stress, illness or following a diet to lose or gain weight. Negative affect and stress can, for example, increase the likelihood of choosing energy-rich foods (Schüz, Schüz, & Elliston, 2016; O’Connor, Jones, Conner, McMillan, & Ferguson, 2008). Additionally, the current study did not take into account individual differences in psychological influence of the food environment, which could explain certain outcomes. A recommendation for future research would be to include such a measure, for example the Power of Food Scale, which was designed to measure individual differences in being aware of food availability, reactions to thinking about food, and reactions to tasting food (Lowe et al., 2009; Cappelleri et al., 2009). This could give possible explanations for the impact of the environment on eating behavior and perceived obesogenicity. Future research could additionally investigate what characterizes the several groups: who are more prone to changes in eating behavior due to a change of environment? For example, it could be fruitful to investigate whether there is a difference between obese and non-obese people. Findings from the study of Gorin, Phelan, Raynor, & Wing (2011) suggest that normal-weight and obese individuals may differ in the way they arrange their home eating environment. In the current sample only a small percentage of people were overweight or obese, whilst more than 50 percent of the actual population is overweight (CBS, 2019). Investigating whether there is a difference between these groups could give insight into which groups interventions should target.

Furthermore, this study relies on recalls of eating behavior and perceptions of the environment. These recalls are subject to a range of potential limitations, including memory bias (Schüz, Schüz, & Ferguson, 2015). Environmental influences appear in a subtle and unconscious way that is usually not recognized by most people when they eat (Sobal & Wansink, 2007). A recommendation for future research would be to use objective measures, such as Ecological Momentary Assessment (EMA) (Shiffman, Stone, & Hufford, 2008). EMA is a method that uses repeated collection of real-time data on subjects' behaviors and experiences in their natural environments. This reduces the chance of memory bias and further allows the examination of behaviors in close-to-real-time (Schüz, Schüz, & Ferguson, 2015).

Another important limitation and subsequent recommendation concerns the fact that obesogenic environments are about environments that stimulate to eat too much *and* exercise too little (Gebel et al., 2005). In this study, only eating behavior was examined. However, the home isolation also impacts physical activity, which plays a role in perceived obesogenicity and is closely related to possible weight gain. It could be that people did not change their eating behavior but exercised less, ultimately leading to positive energy balance and subsequent weight gain (Romieu et al., 2017). The study of Volkskrant and Ipsos (Clerq, 2020) showed for example that 38 percent of the participants was less physically active compared to the situation before the measures. It is recommended for future research to include physical activity for a more comprehensive approach of perceived obesogenicity of the environment.

Lastly, the relation between obesogenicity of environment and actual behavior was not investigated in this thesis. It was only investigated whether perceived change in obesogenicity predicted intention and self-efficacy. Several studies show that intention does not always guarantee behavior, also referred to as the *intention-behavior gap* (Webb & Sheeran, 2006). In the attached report, a start has been made on these analyses, showing that people who experience the environment as more obesogenic have indeed eaten less healthy. For future research it is recommended to investigate this exact relationship more closely.

Implications

As expected, this study finds that there is division in people who experience their environment as more or less obesogenic, effecting feelings of self-efficacy and subsequent intention. It is important for interventions to target people that perceive their home environment as more obesogenic, to prevent unhealthy changes in eating behavior and possible weight gain and to support healthy dietary habits. It is unclear how long the measures surrounding Corona will last. Although there have been some gradual changes moving away from the home isolation, it is expected that the effects of Corona on our society will be felt for months if not years.

Additionally, there is a risk of a ‘second wave’ of Corona or a new pandemic, possibly leading to a new lockdown (NOS, 2020). Therefore, it is important to learn from the current situation, using the results of this study to think about possible interventions that can mitigate negative effects of working and/or studying from home, preventing the development of unhealthy dietary behaviors and subsequent weight gain.

The results of this study showed that a group of people experience their home environment as more obesogenic. This could be reduced relatively easily focusing interventions on changing people's home environment. A tool that could be used in such an intervention is ‘*Hoe helpt jouw huis je gezond te kiezen*’ (how does your home help you choose healthy), a tool from the Netherlands Nutrition Center, which contains tips for designing the home environment more healthy (Voedingscentrum, n.d.). Providing this information can on the one hand lead to a decrease in perceived obesogenicity of the environment, but can additionally have a direct positive effect on feelings of self-efficacy, where informing an individual how to perform certain behavior is a mechanism that can boost self-efficacy (Bandura, 1977).

Conclusion

To conclude, the present study was the first to investigate perceived obesogenicity of the changed environment due to the corona measures. It provides evidence for the home environment as possibly being perceived as *more* obesogenic, affecting perceived self-efficacy and the intention to eat healthy. The present study adds to the literature on perceptions of the home environment, helps to understand possible underlying mechanisms for changes in eating behavior and provides relevant information for future interventions. However, future research is needed regarding the causal effect of the home environment on the eating behavior of people and to examine individual characteristics that can explain differences in perceived obesogenicity of the environment.

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Appendices

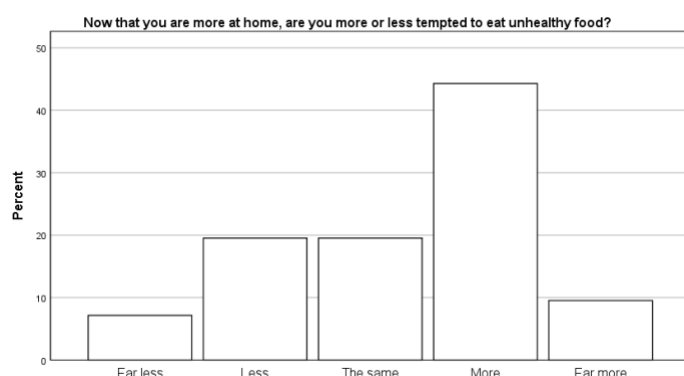
Appendix A – Demographic Variables

Descriptives participants

Variables	Values
Age; mean \pm SD (min–max)	34,1 \pm 13.26 (19-79)
Age categories, n (%)	
18-27	102 (48,6)
28-37	37 (17,6)
38-47	30 (14,3)
48-57	23 (11)
58-67	17 (8,1)
>67	1 (0,5)
Sex, n (%)	
Male	37 (82,4)
Female	173 (17,6)
Education	
Low education	8 (3,8)
Middle education	19 (9)
High education	182 (86,7)
BMI; mean \pm SD (min–max)	23,26 \pm 3.94 (17,18-50,70)
BMI categories, n (%)	
Underweight	6 (2,9)
Normal weight	153 (72,9)
Overweight	42 (20)
Extremely overweight	8 (3,8)
Living situation	
Alone	32 (15,2)
With partner	75 (25,7)
With family	61 (29)
With roommates	32 (15,2)
Otherwise, namely	9 (4,2)

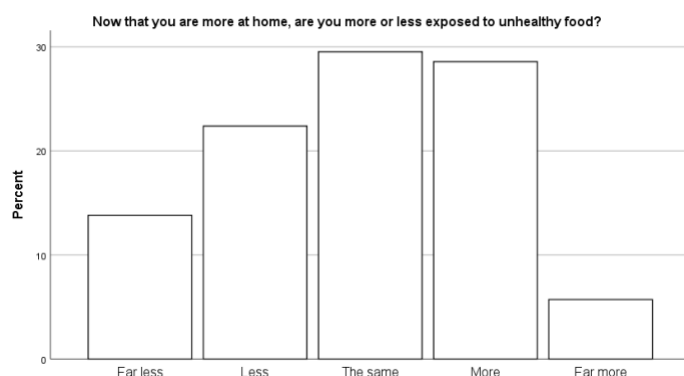
Appendix B – Results of PCOE-11 items

1. Now that you are more at home, are you more or less tempted to eat unhealthy food?



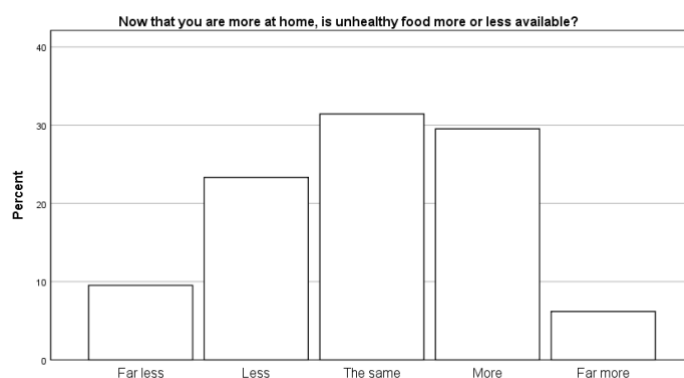
	Absolute	Relative
Far less	15	7,1%
Less	41	19,5%
The same	41	19,5%
More	93	44,3%
Far more	20	9,5%

2. Now that you are more at home, are you more or less exposed to unhealthy food?



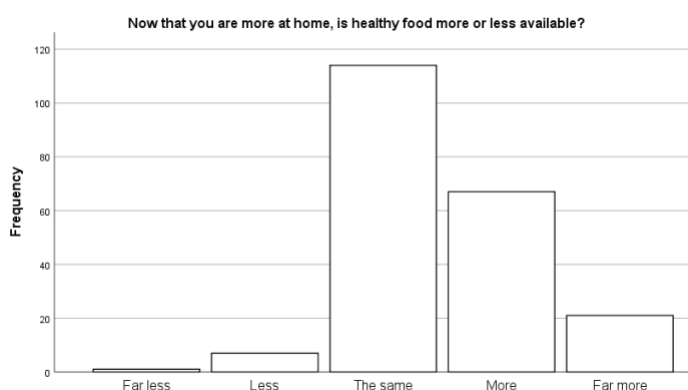
	Absolute	Relative
Far less	29	13,8%
Less	47	22,4%
The same	62	29,5%
More	60	28,6%
Far more	12	5,7%

3. Now that you are more at home, is unhealthy food more or less available?



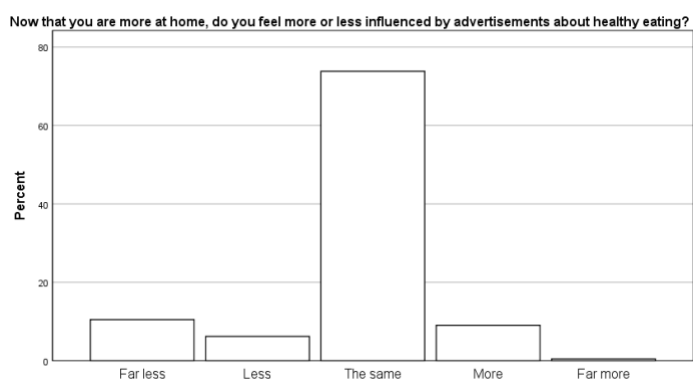
	Absolute	Relative
Far less	20	9,5%
Less	49	23,3%
The same	66	31,4%
More	62	29,5%
Far more	13	6,2%

4. Now that you are more at home, is healthy food more or less available?



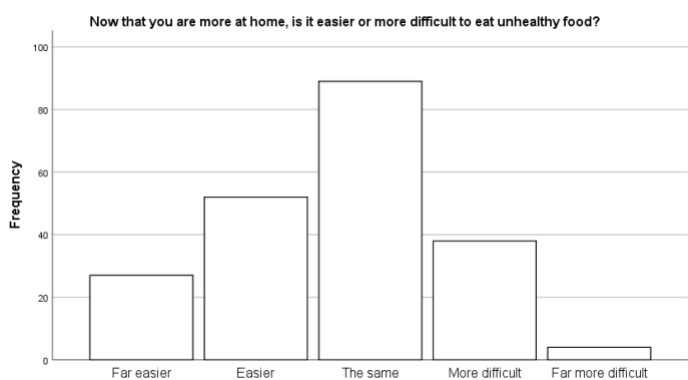
	Absolute	Relative
Far less	1	,5%
Less	7	3,3%
The same	114	54,3%
More	67	31,9%
Far more	21	10%

5. Now that you are more at home, do you feel more or less influenced by advertisements about healthy eating?



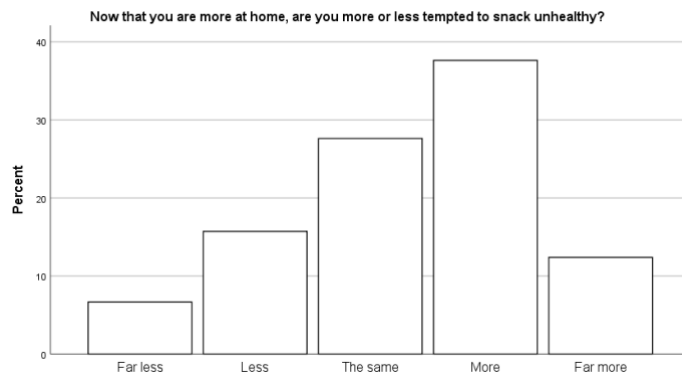
	Absolute	Relative
Far less	22	10,5%
Less	13	6,2%
The same	155	73,8%
More	19	9%
Far more	1	,5%

6. Now that you are more at home, is it easier or more difficult to eat unhealthy food?



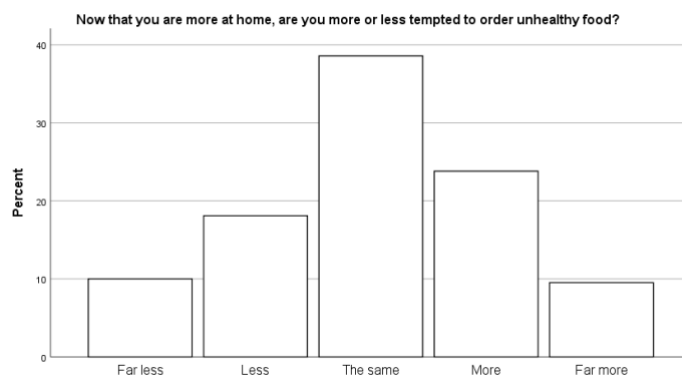
	Absolute	Relative
Far easier	27	12,9%
Easier	52	24,8%
The same	89	42,4%
More difficult	38	18,1%
Far more difficult	4	1,9%

7. Now that you are more at home, are you more or less tempted to snack unhealthy?



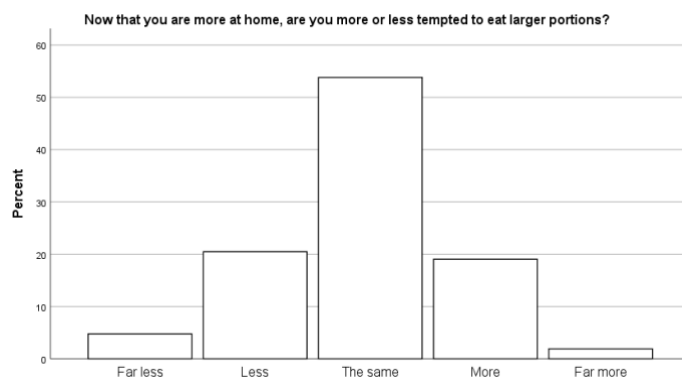
	Absolute	Relative
Far less	14	6,7%
Less	33	15,7%
The same	58	27,6%
More	79	37,6%
Far more	26	12,4%

8. Now that you are more at home, are you more or less tempted to order unhealthy food?



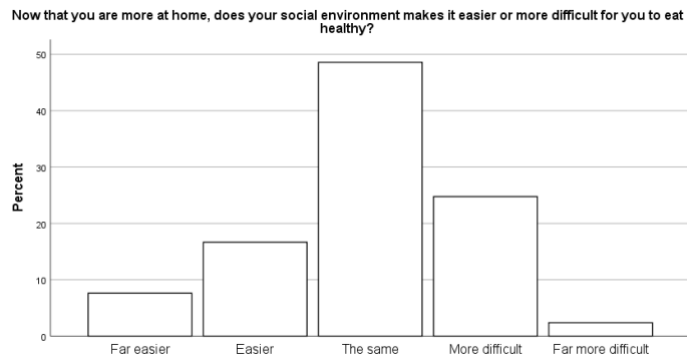
	Absolute	Relative
Far less	21	10%
Less	38	18,1%
The same	81	38,6%
More	50	23,8%
Far more	20	9,5%

9. Now that you are more at home, are you more or less tempted to eat larger portions?



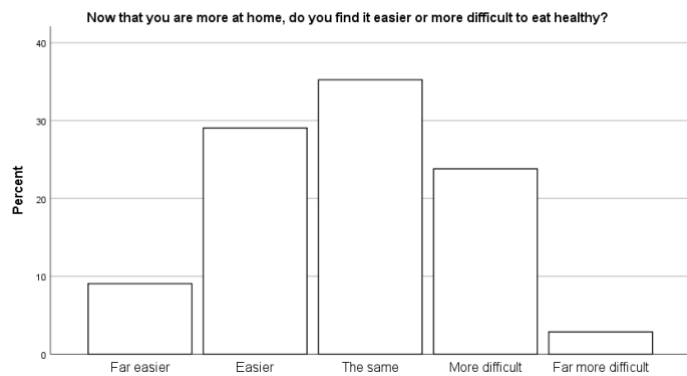
	Absolute	Relative
Far less	10	4,8%
Less	43	20,5%
The same	113	53,8%
More	40	19%
Far more	4	1,9%

10. Now that you are more at home, does your social environment makes it easier or more difficult for you to eat healthy?



	Absolute	Relative
Far easier	16	7,6%
Easier	35	16,7%
The same	102	48,6%
More difficult	52	24,8%
Far more difficult	5	2,4%

11. Now that you are more at home, do you find it easier or more difficult to eat healthy?



	Absolute	Relative
Far easier	19	9%
Easier	61	29%
The same	74	35,2%
More difficult	50	23,8%
Far more difficult	6	2,9%

Appendix C – Factor Analysis PCOE-11

Table 6

Promax Rotated Factor Structure of the Eleven-Item Perceived Obesogenicity of Environment Questionnaire

Item		Loadings	
		Factor	Factor
		1 _a	2 _b
3.	Now that you are more at home, is unhealthy food more or less available?	.89	
2.	Now that you are more at home, are you more or less exposed to unhealthy food?	.88	
1	Now that you are more at home, are you more or less tempted to eat unhealthy food?	.78	
7	Now that you are more ate home, are you more or less tempted to snack unhealthy?	.78	.14
6	Now that you are more at home, is het easier or more difficult to eat unhealthy food?	.65	-.20
4	Now that you are more at home, is healthy food more or less available?	-.33	.85
11	Now that you are more at home, do you find it easier or more difficult to eat healthy?		.65
10	Now that you are more at home, does your social environment makes it easier or more difficult for you to eat healthy	.30	.63
8	Now that you are more at home, are you more or less tempted to order unhealthy food?	.12	.62
9	Now that you are more at home, are you more or less tempted to eat larger portions?		.50

Note. a = “unhealthy”; b = “healthy”. Factor loadings <.1 have been suppressed.

Exclude item 5 “Now that you are more at home, do you feel more or less influenced by advertisements about healthy eating?”

Appendix D – Regression and Process analyses for PCOE-11, intention and self-efficacy

Table 7

Simple Linear Regression of PCOE-11 Predicting Self-Efficacy

Simple Linear Regression of PCOE-11 Predicting Self-Efficacy									
		Unstandardized		Standardized					
		coefficients		coefficients		Correlations			
		<i>B</i>	Std. error	Beta	<i>t</i>	Sig	Zero-order	Partial	Part
Model									
1	(Constant)	7.662	.361		21.237	.000			
	PCOE-11	-.705	.118	-.383	-5.977	.000	-.383	-.383	-.383

Note. Dependent variable: Self-efficacy. * $p < .05$, ** $p < .01$

Table 8

Multiple Linear Regression Analysis for PCOE-11 and Self-Efficacy Predicting Intention

Multiple Linear Regression Analysis for PCOE-11 and Self-Efficacy Predicting Intention										
Model		Unstandardized		Standardized		<i>t</i>	Sig	Correlations		
		coefficients		coefficients				Zero-order	Partial	Part
		<i>B</i>	Std. error	Beta						
1	(Constant)	3.206	.241			13.318	.000			
	PCOE-11	.485	.042	.621		11.426	.000	.621	.621	.621
2	(Constant)	2.833	.426			6.655	.000			
	PCOE-11	.090	.085	.063		1.064	.289	-.184	.074	.058
	Self-efficacy	.604	.046	.645		10.966	.000	.621	.606	.596

Note. Dependent variable: Intention to eat healthy. * $p < .05$, ** $p < .01$

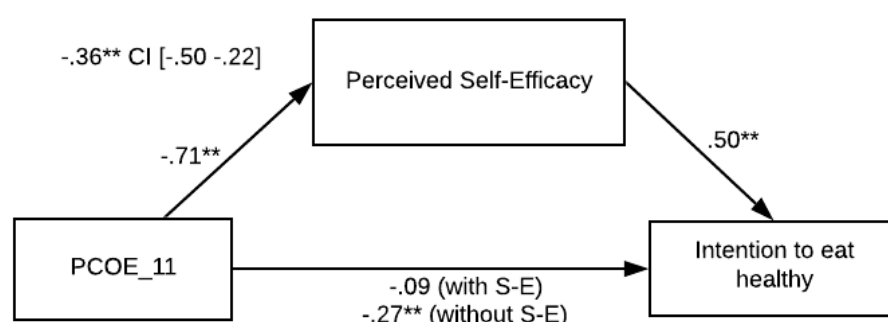


Figure 3. Standardized regression coefficients for the relationship between PCOE-11 and intention to eat healthy mediated by perceived self-efficacy. ** $p < .01$

Appendix E - Regression and Process analyses for PCOE_unhealthy, intention and self-efficacy

Table 9

Simple Linear Regression of PCOE_unhealthy Predicting Self-Efficacy

Simple Linear Regression of PCOE_unhealthy Predicting Self-Efficacy										
Model		Unstandardized		Standardized		t	Sig	Correlations		
		coefficients		coefficients				Zero-	Partial	Part
		B	Std. error	Beta						
1	(Constant)	6.642	.250			26.548	.000			
	PCOE_unhealthy	-.356	.078	-.302		-4.576	.000	-.302	-.302	-.302

Note. Dependent variable: Self-efficacy. * $p < .05$, ** $p < .01$

Table 10

Multiple Linear Regression of PCOE_unhealthy and Self-efficacy on Intention

Multiple Linear Regression of PCOE_unhealthy and Self-efficacy on Intention										
		Unstandardized		Standardized		Correlations				
		coefficients		coefficients		<i>t</i>	Sig	Zero-order	Partial	Part
Model		<i>B</i>	Std. error	Beta						
1	(Constant)	6.210	.204			30.458	.000			
	PCOE_unhealthy	.485	.042	.621		11.426	.112	-.110	-.110	-.110
2	(Constant)	2.852	.336			8.494	.000			
	PCOE_unhealthy	.079	.052	.086		1.509	.133	-.110	.104	.082
	Self-efficacy	.506	.044	.647		11.381	.000	.621	.620	.617

Note. Dependent variable: Intention to eat healthy. * $p < .05$, ** $p < .01$

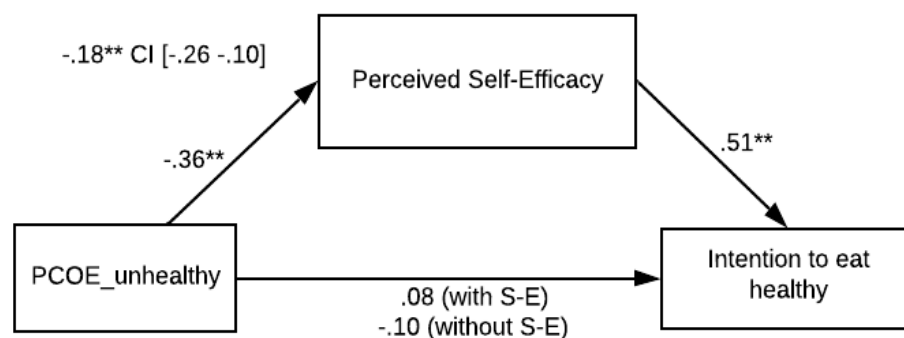


Figure 4. Standardized regression coefficients for the relationship between PCOE_unhealthy and intention to eat healthy mediated by perceived self-efficacy. ** $p < .01$

Appendix F – Questionnaire

Hartelijk dank dat je meedoet aan dit onderzoek!

Doel van het onderzoek

Er is de afgelopen tijd veel veranderd in Nederland als gevolg van de corona-uitbraak en de maatregelen die zijn genomen. Veel mensen werken en/of studeren bijvoorbeeld vanuit huis. Het doel van dit onderzoek is om meer inzicht te krijgen in hoe mensen de veranderde situatie ervaren en of dit invloed heeft op hun eetgedrag en op de intentie om gezond te eten.

Vertrouwelijkheid van gegevens

Voor deze studie zullen enkele persoonlijke gegevens worden verzameld, zoals je leeftijd, opleidingsniveau, lengte en gewicht. Deze gegevens zijn, evenals alle gegevens die via de vragenlijst zijn verzameld, volledig anoniem. Je antwoord op de vragen wordt op geen enkele manier tot jou herleid en de antwoorden zullen uitsluitend voor dit onderzoek worden geanalyseerd.

Deelname aan het onderzoek

Deze vragenlijst is bedoeld voor respondenten van 18 jaar en ouder, die als gevolg van de coronamaatregelen nu voornamelijk thuis werken en/of studeren of meer thuis zijn dan vóór de coronamaatregelen.

Deelname aan dit onderzoek is vrijwillig. Je kunt je deelname aan het onderzoek op elk moment beëindigen. Het invullen van de vragenlijst duurt ongeveer 15 minuten.

Mocht je verder nog vragen of opmerkingen hebben, stuur dan gerust een e-mail naar steenbruggen@voedingscentrum.nl

Voor nu wil ik je alvast enorm bedanken voor je deelname.

Met vriendelijke groet,
Eline Steenbruggen

- ☐ Ik ben ouder dan 18 jaar
- ☐ Ik heb bovenstaande gelezen en ik ga akkoord met deelname aan het onderzoek

Wat is je huidige situatie? Kruis aan wat op jou van toepassing is.

Ik leef, werk en/of studeer op dit moment voornamelijk/volledig...

- ☐ vanuit huis, **anders** dan voor de corona-uitbraak en de maatregelen die zijn genomen
- ☐ vanuit huis, **net zoals** voor de corona-uitbraak en de maatregelen die zijn genomen (vragenlijst afsluiten)
- ☐ buitenshuis, **net zoals** voor de corona-uitbraak en de maatregelen die zijn genomen (vragenlijst afsluiten)

De volgende vragen zullen gaan over je eetgedrag. Als we spreken over “afgelopen weken” of “in de huidige situatie” dan bedoelen we de situatie sinds het uitbreken van het Coronavirus en de genomen maatregelen. Als we spreken over “voorheen” dan bedoelen we de situatie vóór het uitbreken van het Coronavirus en de genomen maatregelen. In een groot deel van de vragen wordt gevraagd de verschillende situaties met elkaar te vergelijken. Probeer dan een zo goed mogelijke inschatting te maken.

- 1. Hoe belangrijk vond je het vóór alle coronamaatregelen over het algemeen om gezond te eten? Geef je antwoord op een schaal van 1 (heel erg onbelangrijk) tot 10 (heel erg belangrijk)**

1 2 3 4 5 6 7 8 9 10

- 2. Hoe goed lukte het je vóór alle coronamaatregelen over het algemeen om gezond te eten? Geef je antwoord op een schaal van 1 (helemaal niet goed) tot 10 (heel goed)**

1 2 3 4 5 6 7 8 9 10

- 3. Vind je het in de huidige situatie belangrijker, minder belangrijk of even belangrijk om gezond te eten, vergeleken met de situatie voor de coronamaatregelen?**

- ☐ Ik vind het in de huidige situatie belangrijker om gezond te eten
☐ Ik vind het in de huidige situatie even belangrijk om gezond te eten
☐ Ik vind het in de huidige situatie minder belangrijk om gezond te eten

- 4. Ben je over het algemeen in de afgelopen weken gezonder, even gezond of minder gezond gaan eten, in vergelijking met voorheen?**

- ☐ Ik ben gezonder gaan eten dan voorheen
☐ Ik ben even gezond blijven eten als voorheen
☐ Ik ben minder gezond gaan eten dan voorheen

- 5. Vond je het de afgelopen weken makkelijker of moeilijker om gezond te eten, vergeleken met voorheen?**

- ☐ Ik vond het afgelopen weken makkelijker om gezond te eten (uitklappen naar a)
☐ Ik vond het de afgelopen weken even makkelijk/moeilijk om gezond te eten
☐ Ik vond het de afgelopen weken moeilijker om gezond te eten (uitklappen naar b)

- a. Wat zijn de belangrijkste factoren die het voor jou makkelijker maken om gezond te eten? (maximaal 3 antwoorden mogelijk)**

- ☐ Minder verleidingen op het werk (bijv. verjaardag traktaties)
☐ Minder verleidingen onderweg (bijv. bij op het tank- en treinstation)
☐ Minder verleidingen bij sociale contacten (bijv. geen koekje of taart bij de koffie)
☐ Meer tijd en aandacht om bewust met gezonde voeding bezig te zijn
☐ Gezond eten is gemakkelijk beschikbaar in huis
☐ Meer sociale controle van partner/gezin/huisgenoten
☐ Anders, namelijk: ...

b. Wat zijn de belangrijkste factoren die het voor jou moeilijker maken om gezond te eten? (maximaal 3 antwoorden mogelijk)

- ☐ Ongezonder eten is gemakkelijk beschikbaar in huis
- ☐ Sneller geneigd mee te eten of snacken met partner/gezin/huisgenoten
- ☐ Meer tijd en ruimte om uitgebreid te koken / te bakken
- ☐ Meer ontspanningsmomenten (bijv. vaker een bakje chips bij de televisie)
- ☐ Meer gevoelens van stress
- ☐ Minder sociale controle (bijv. omdat het makkelijker is een koekje te pakken, niemand die het ziet)
- ☐ Minder sociale contacten / eenzaamheid
- ☐ Verveling
- ☐ Anders, namelijk...

6. Geef aan in hoeverre je de volgende eet- en drinkwaren afgelopen weken meer, evenveel of minder hebt gegeten dan voorheen.

	1 Veel minder	2 Iets minder	3 Evenveel	4 Iets meer	5 Veel meer	6 Eet/drink ik nooit
Groente						
Fruit						
Peulvruchten (bijv. bonen, linzen, kikkererwten)						
Vlees(waren)						
Vis						
Zoete snacks (bijv. snoep, koekjes, chocola of taart)						
Zoute snacks (bijv. chips, gezouten noten)						
Frituur						
Niet-gesuikerde dranken (bijv. water, koffie en thee)						
Gesuikerde dranken (bijv. frisdrank, gesuikerde koffie/thee)						
Alcoholische dranken						

7. Ben je afgelopen weken door de dag heen op meer of minder momenten gaan eten dan voorheen? Denk hierbij aan hoofdmaaltijden en momenten dat je tussendoor iets eet.

- ☐ Ik ben op meer momenten gaan eten
- ☐ Ik ben op evenveel momenten blijven eten

☐ Ik ben op minder momenten gaan eten

8. Ben je naar jouw idee afgelopen weken over het algemeen meer of minder gaan eten in vergelijking met voorheen? Denk aan grotere porties, meerdere eetmomenten, etc.

☐ Ja, ik ben over het algemeen meer gaan eten dan voorheen

☐ Nee, ik ben over het algemeen even veel blijven eten als voorheen

☐ Ja, ik ben over het algemeen minder gaat eten dan voorheen

9. Is er sinds de coronamaatregelen iets veranderd in je dagelijkse eetgewoontes of eetroutine, in vergelijking met voorheen? Denk bijvoorbeeld aan de hoeveelheden die je eet, wat je eet, waar je eet, wanneer je eet, met wie je eet of hoe lang je eet.

10. Geef aan in hoeverre je de volgende eet- en drinkwaren meer, evenveel of minder in huis hebt gehaald, in vergelijking met voorheen

	1 Veel minder	2 Iets minder	3 Evenveel	4 Iets meer	5 Veel meer	6 Eet/drink ik nooit
Groente						
Fruit						
Peulvruchten (bijv. bonen, linzen, kikkererwten)						
Vlees(waren)						
Vis						
Zoete snacks (bijv. snoep, koekjes, chocola of taart)						
Zoute snacks (bijv. chips, gezouten noten)						
Frituur						
Niet-gesuikerde dranken (bijv. water, koffie en thee)						
Gesuikerde dranken (bijv. frisdrank, sap)						
Alcoholische dranken						

Als gevolg van de coronamaatregelen zitten mensen nu veel thuis. De thuissituatie (bijv. gezin, huisgenoten of alleenwonend) kan invloed hebben op iemands eetgedrag. Zo kan dit het eetgedrag negatief beïnvloeden (bijv. huisgenoten die vaak ongezond eten aanbieden, een partner die veel ongezonds in huis haalt of gebrek aan sociale controle), maar ook positief (bijv. het goede voorbeeld willen geven aan kinderen of sociale controle van huisgenoten). De volgende vraag zal hierover gaan.

11. Wat voor invloed heeft jouw thuissituatie (bijv. gezin, huisgenoten of alleenwonend) op jouw eetgedrag, vergeleken met de situatie vóór de coronamaatregelen?

- ☐ Mijn thuissituatie maakt het makkelijker om gezond te eten (uitklappen naar a)
- ☐ Mijn thuissituatie heeft geen invloed op mijn eetgedrag
- ☐ Mijn thuissituatie maakt het moeilijker voor mij om gezond te blijven eten (uitklappen naar b)

a. Waarom maakt jouw thuissituatie het makkelijker om gezond te eten? (bijv. goede voorbeeld willen geven, sociale controle)

b. Waarom maakt jouw thuissituatie het moeilijker om gezond te eten? (bijv. partner/huisgenoten die iets aanbieden, mee-eten met anderen)

Daarnaast is als gevolg van de coronamaatregelen de sociale situatie voor veel mensen ook veranderd. Mensen worden niet meer omgeven door collega's en spreken minder of niet meer af met bijvoorbeeld vrienden, kennissen en familie. Dit kan een positieve invloed hebben op het eetgedrag van mensen (bijv. geen traktaties meer van collega's op werk of de weggefallen verplichting om aangeboden eten aan te nemen), maar ook een negatieve invloed (bijv. minder sociale controle of gevoelens van eenzaamheid die aanzetten tot ongezond eten). De volgende vraag zal hierover gaan.

12. Wat voor invloed heeft de verandering van deze sociale situatie op jouw eetgedrag?

- ☐ De veranderde situatie maakt het makkelijker voor mij om gezond te eten (uitklappen naar a)
- ☐ De veranderde situatie heeft geen invloed op mijn eetgedrag
- ☐ De veranderde situatie maakt het moeilijker voor mij om gezond te eten (uitklappen naar b)

a. Welke factoren dragen er aan bij dat het makkelijker is om gezond te eten? Denk bijvoorbeeld aan weggefallen verplichting om aangeboden eten aan te nemen of minder gelegenheden om ongezond te eten.

b. Welke factoren dragen er aan bij dat het moeilijker is om gezond te eten? Denk bijvoorbeeld aan weggefallen sociale controle of gevoelens van eenzaamheid die aanzetten om ongezond eten.

In de volgende vragen wordt gevraagd een vergelijking te maken tussen de huidige omgeving waarin je je een groot deel van de dag bevindt (d.w.z. de situatie sinds de coronamaatregelen en het voornamelijk thuis leven, werken of studeren) en de omgevingen waar je je vóór de coronamaatregelen voornamelijk bevond (bijv. op het werk, onderweg of op bij sport- en vrijetijdsbesteding). Geef aan wat het meest op jou van toepassing is.

13. Word je je, nu je meer thuis bent, meer of minder verleid om ongezond te eten?

Veel minder 1 2 3 4 5 Veel meer

14. Word je, nu je meer thuis bent, meer of minder vaak blootgesteld aan ongezond eten?

Veel minder 1 2 3 4 5 Veel meer

15. Is ongezond eten, nu je meer thuis bent, meer of minder beschikbaar?

Veel minder 1 2 3 4 5 Veel meer

16. Is gezond eten, nu je meer thuis bent, meer of minder beschikbaar?

Veel minder 1 2 3 4 5 Veel meer

17. Voel je je, nu je meer thuis bent, meer of minder beïnvloed door reclames over ongezond eten?

Veel minder 1 2 3 4 5 Veel meer

18. Is het, nu je meer thuis bent, makkelijker of moeilijker om ongezond eten te nemen?

Veel makkelijker 1 2 3 4 5 Veel moeilijker

19. Word je, nu je meer thuis bent, meer of minder verleid om ongezond te snacken en snoepen?

Veel minder 1 2 3 4 5 Veel meer

20. Word je, nu je meer thuis bent, meer of minder verleid om ongezond eten te bestellen/ af te halen?

Veel minder 1 2 3 4 5 Veel meer

21. Ben je, nu je meer thuis bent, meer of minder geneigd om grote porties te eten?

Veel minder 1 2 3 4 5 Veel meer

22. Maakt jouw sociale omgeving (bijv. gezin, partner, huisgenoten of alleenwonend) het, nu je meer thuis bent, makkelijker of moeilijker voor jou om gezond te eten?

Veel makkelijker 1 2 3 4 5 Veel moeilijker

23. Vind je het, nu je meer thuis bent, moeilijker of makkelijker om gezond te eten?

Veel makkelijker 1 2 3 4 5 Veel moeilijker

De volgende vragen zullen gaan over jouw intentie om gezond te eten.

24. Geef aan in hoeverre je het eens bent met de volgende stellingen.

1 = Helemaal mee oneens, 2 = Mee oneens, 3 = Beetje mee oneens, 4 = Neutraal, 5 = Beetje mee eens, 6 = Mee eens, 7 = Helemaal mee eens

	1.	2.	3.	4.	5.	6.	7.
Intentie							
Ik ben van plan om komende week gezond te eten							
Ik zal komende week gezond eten							
Ik heb de intentie om komende week gezond te eten							
Motivatie							
Ik voel me gemotiveerd om aankomende week gezond te eten							
Ik ga komende week moeite doen om gezond te eten							

Ik ga me volgende week inspannen om gezond te eten							
Self-efficacy							
Ik ben er zeker van dat ik komende week gezond kan eten							
Het gaat me lukken om komende week gezond te eten							
Ik heb er vertrouwen in dat ik komende week gezond kan eten							

Ten slotte willen wij je nog enkele achtergrondvragen stellen.

25. Wat is je geslacht?

- ☐ Vrouw
☐ Man
☐ Anders/wil ik niet zeggen

26. Wat is je leeftijd?

- ☐ [18-99]

27. Wat is je lengte? (in cm)

- ☐ [100-250]

28. Wat is je gewicht? (in kg)

- ☐ [40-250]

29. Heb je een idee of je gewicht is veranderd vergeleken met vlak voor de coronamaatregelen?

- ☐ Ja, ik ben afgelopen weken afgevallen (uitklappen naar 5a)
☐ Ja, ik ben afgelopen weken aangekomen (uitklappen naar 5b)
☐ Ja, ik weeg nog hetzelfde als voorheen
☐ Nee, ik weet niet of ik ben afgevallen of aangekomen

a. Hoeveel kilo ben je (ongeveer) afgevallen?

[0-50]

b. Hoeveel kilo ben je (ongeveer) aangekomen?

[0-50]

30. Wat is het hoogste opleidingsniveau dat je hebt gevolgd of momenteel voor bent ingeschreven?

- ☐ Basisschool
☐ Middelbare school (VMBO, HAVO, VWO)
☐ Middelbaar beroepsonderwijs (MBO)
☐ Hoger beroepsonderwijs (HBO)
☐ Universiteit (bachelor)
☐ Universiteit (master)

☐ Anders, namelijk...

☐ ...

31. In welke sector werk en/of studeer je op dit moment?

- ☐ Gezondheidszorg en welzijn
- ☐ Handel en dienstverlening
- ☐ ICT
- ☐ Justitie, veiligheid en openbaar bestuur
- ☐ Landbouw, natuur en visserij
- ☐ Media en communicatie
- ☐ Onderwijs, cultuur en wetenschap
- ☐ Techniek, productie en bouw
- ☐ Toerisme, recreatie en horeca
- ☐ Transport en logistiek

32. In welke provincie woon je?

- ☐ Groningen
- ☐ Friesland
- ☐ Drenthe
- ☐ Overijssel
- ☐ Flevoland
- ☐ Gelderland
- ☐ Utrecht
- ☐ Noord-Holland
- ☐ Zuid-Holland
- ☐ Zeeland
- ☐ Noord-Brabant
- ☐ Limburg

33. Wat is uw huidige woonsituatie?

- ☐ Ik woon alleen
- ☐ Ik woon samen met mijn partner
- ☐ Ik woon samen met mijn gezin
- ☐ Ik woon samen met huisgenoten
- ☐ Anders, namelijk
- ☐ ...

Heel erg bedankt dat je de tijd hebt genomen om deze vragenlijst in te vullen. Als je nog vragen of opmerkingen hebt naar aanleiding van deze vragenlijst, kan je mailen naar steenbruggen@voedingscentrum.nl

Met vriendelijke groet,
Eline Steenbruggen

Druk op de rechterpijl om je antwoorden te verzenden en de vragenlijst af te sluiten.

