Appetite 138 (2019) 204–214

Contents lists available at ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

Default-name and tasting nudges increase salsify soup choice without increasing overall soup choice

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ARTICLE INFO

Keywords:
Nudging
Vegetables
Default
Tasting
Soup
Salsify

ABSTRACT

Nudging is a popular behavior change technique but the conditions for its effectiveness have not been researched extensively. The current study aimed to test whether the effectiveness of nudging is limited to certain characteristics of the nudged product by focusing on a specific product (salsify soup) within a broader category (soups). Two parallel studies were conducted in two sandwich restaurants in a university setting at which a default-name nudge ("suggestion of the chef") and a tasting nudge were implemented aimed at increasing the choice for salsify soup using a non-randomized study design during 10 and 12 measurement days. The beta-regression model showed that the default-name nudge increased the proportion of customers that choose the salsify soup during intervention days compared to non-intervention days, $p < .001$, OR: 1.70. The tasting nudge also increased the proportion of customers that choose the salsify soup from baseline to intervention, $p < .001$, OR: 6.17 and from baseline to post-intervention, $p < .01$, OR: 1.87, and decreased from intervention to post-intervention, $p < .001$, OR: 0.30. Both nudges did not increase the choice for the overall category of soups. The results show that certain types of nudges are able to increase specific products of a category without increasing overall choice of a category in contrast to previous findings.

1. Introduction

It has long been known that people do not always make rational decisions about health-related matters, as a person's decision-making is systematically influenced by heuristics and biases (Tversky & Kahneman, 1974). Most theories of information processing acknowledge this and distinguish between two types of processes: automatic processes that are unconscious, rapid and high in capacity; and reflective processes that are conscious, slow and deliberative (Evans, 2008). Automatic decision processes often lead to less than optimal choices, because the heuristics they imply can be biased (Tversky & Kahneman, 1974). However, while the main aim of education is to counteract automatic decision processes on account of their potential undesirable effects, automatic processes are not *per se* disadvantageous. As such, strengthening automatic information processing systems that direct people towards more advantageous (e.g., healthier) behavioural options can be a valuable addition to education and might reduce the intention-behavior gap (Sheeran, 2002). *Nudging* is an example of a behavior change approach that is based on automatic decision-making. The concept was introduced by Thaler and Sunstein (2008), who defined nudging as *'any aspect of the choice architecture that alters people's behavior in a predictable way, without forbidding any options or significantly changing their economic incentives'* (p. 6). An example of a nudge is placing healthy rather than unhealthy foods at the cash register, to make it easier for customers to make a healthy food choice (Kroese, Marchiori, & de Ridder, 2015).

Nudging can be applied to many different domains, but in the current paper we will focus on food consumption. As a technique to change behavior, nudging has become very popular over the last few years, possibly due to its popularity amongst policy makers (Hansen & Jespersen, 2013). However, with regard to influencing food choice the effectiveness of nudging is not yet well established. Systematic reviews point to the low quality of many studies and to inconsistent findings regarding the effectiveness of certain forms of nudging in particular settings (Frerichs et al., 2015; Nørnberg, Houlby, Skov & Perez-Cueto, 2016; Skov, Lourenco, Hansen, Mikkelsen, & Schofield, 2013; Wilson, Buckley, Buckley, & Bogomolova, 2016). Some systematic reviews (Bucher et al., 2016; Thapa & Lyford, 2014; Wilson et al., 2016) and meta-analyses (Arno & Thomas, 2016; Broers, De Breucker, Van den Broucke, & Luminet, 2017; Cadario & Chandon, 2018) concluded that

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https://doi.org/10.1016/j.appet.2019.03.027
Received 30 October 2018; Received in revised form 4 March 2019; Accepted 23 March 2019
Available online 27 March 2019

there is a positive effect of (specific types of) nudging on healthy food related behavior, but further research is needed to confirm whether nudging is indeed an effective means to improve healthy food choice, and if so, under which conditions it is most effective. Marchiori, Adriaanse, and De Ridder (2017) suggest that before the strategy can be implemented in real life, in-depth research is required to investigate the psychological boundary conditions of nudging. We propose that one of these conditions could be the characteristics of the nudged product itself, such as the specificity of the product. One empirical study that documented this matter showed that a cue-to-action nudging intervention was effective for a general category of familiar vegetables, but not for specific, unfamiliar vegetables (Broers, Van den Broucke, Taverne, & Luminet, 2018). However, as only two types of nudges were implemented, further research is required.

The current study aims to test whether nudging can also be successful for a specific product (salsify soup) within a category (all soups) or whether the nudging only has an effect on a general category by testing two nudges that were expected to have a more specific versus broad effect. The specific product that was targeted is the vegetable salsify. Salsify contains a high amount of inulin-type fructans (ITF) (Kalala et al., 2018), which are a particular type of fibers known for their prebiotic capacities (Neyrinck et al., 2016). Research has shown that an ITF prebiotic-treatment results in subtle changes in the composition of the gut micro biota of obese women (Dewulf et al., 2013; Salazar et al., 2015). Studies of the composition and/or activity of the gut micro biota of lean versus obese individuals suggest that changes in the composition of the gut micro biota could be beneficial for patients with obesity (Delzenne, Neyrinck, & Cani, 2013). Increasing the amount of prebiotic vegetables in diets could therefore be beneficial to obese patients and contribute to the prevention of obesity in the general population. A survey among a representative sample of 1260 inhabitants of the Walloon region in Belgium revealed that salsify is an unfamiliar vegetable (Broers, Van den Broucke, & Luminet, 2018a). Ten percent of the survey respondents did not recognize salsify, and there was only a weak intention to consume more salsify in the future. The unfamiliarity regarding salsify is even higher among students (Broers, Van den Broucke, & Luminet, 2018b), 35% of whom do not recognize the vegetable, and a large majority having no intention to consume more salsify in the future.

A previous correlational study concerning salsify consumption (Broers et al., 2018b) showed that more external control (e.g., parents making the decision to prepare salsify) was related to more salsify consumption. A sense of external control can be increased by creating a default option nudge. A healthy default option helps people choose a healthier product by relying on the status quo bias, or the tendency to stick with the current or default option even when better options are available (Samuelson & Zeckhauser, 1988). In a restaurant setting, a default option can be the default size of a portion (e.g. Freedman & Brochado, 2010; Giesen, Geyskens, Goukens, & Havermans, 2013), a certain dish by default (e.g. Just & Price, 2013; Saulais et al., 2016) or proposing a dish of the day (e.g. Dos Santos et al., 2018). In other fields, using default options has been shown to be one of the most effective nudges. For example, an automatic inscription (opt-out) as an organ donor leads to a higher number of donors (Johnson & Goldstein, 2003). With regard to food choice, evidence regarding the effectiveness of defaults is less consistent The first hypothesis is that changing the name of the salsify soup to “suggestion of the chef” (default-name nudge) will increase the choice of salsify soup among soup customers, but not the overall soup choice among all customers.

The choice for a particular vegetable is not only an automatic response influenced by predictors such as external control but the present study also takes the motivational aspects of attitudes and familiarity into account. A previous correlational study showed that positive attitudes (e.g. taste) towards salsify were strong predictors of intention to consume salsify (Broers et al., 2018a, 2018b). Influencing attitudes and intentions to change behavior is in line with the Theory of Planned Behavior (Ajzen, 1991). While the TPB aims to target reflective thinking and nudging aims to target automatic thinking, it is possible that both modes of thinking can be influenced by one nudge. Nudging uses cues to activate nonconscious thought processes involved in human decision-making (Marchiori et al., 2017). Similarly, objects in the environment can trigger evaluations and attitudes automatically (Fazio, Sanbonmatsu, Powell, & Kardes, 1986). According to a systematic review, the taste of food is one of the most consistent determinants of vegetable choice in adults (Guillaumie, Godin, & Vezina-Im, 2010). However, for unfamiliar foods people cannot appreciate the taste because they have never tasted the product. As such, offering an opportunity to taste an unfamiliar product could influence familiarity, attitudes and intentions to choose the product, thus creating an opportunity for automatic behavior to take place. However, tasting a specific product (salsify soup) within a category (soup) could also lead to an increase of the choice for the entire category (all soups). Olstad, Goonewardene, McCargar, and Raine (2014) tested a nudge that combined descriptive names with taste testing for unfamiliar foods and found no increase for the choice of healthy food for the entire sample, but did find an increase in sales of healthy food items by 30% in the subsample. Schickenberg, van Assema, Brug, and de Vries (2011) tested the effect of offering samples of unfamiliar foods to neophobic young adults and found that 51% of the participants in the experimental group chose the unfamiliar product, versus 36.4% in the control group. Our second hypothesis is therefore that increasing the familiarity of a specific, unfamiliar product through a tasting intervention (tasting nudge) will lead to an increased choice for the specific unfamiliar product (salsify soup) among soup customers, as well as an increased choice for the general familiar category (soups) among all customers. Finally, our third hypothesis is that familiarity and attitudes will increase simultaneously as a result of the tasting intervention, and that intentions play a mediating role between familiarity and attitudes and salsify soup choice. Because of this expected increase in familiarity, attitudes and intention, a carry-over effect of the salsify soup tasting is expected for the salsify soup choice in the post-intervention phase.

2. Material and methods

2.1. Participants and setting

Entire samples study 1 and 2. Participants were customers of two Belgian sandwich restaurants during lunchtime on weekdays. The two restaurants belong to the university catering service. They do not differ in their offer, but are located in two different university campuses that are about 25 km apart. The a la carte menu consists of several different sandwiches, salads and desserts and six different soups. Two fixed menus are also proposed, both including a small serving of soup. It is possible to order soup in three sizes: small (0.3 L), big (0.47 L) or a “large” take-away soup (0.82 L). Both studies took place in the same 4-week period in April and May 2018.

2.2. Subsample study 2

A subsample of participants was recruited trough flyers in the restaurant, online on the Facebook page of the restaurant and a special forum of the university to recruit participants and were paid 20 euros. Forty-two participants signed up and completed the first questionnaire, three participants dropped out at the intervention phase and another one at the post-intervention phase, resulting in 38 participants. Because of the success of the tasting intervention, the salsify soup was always finished before the end of the service during the intervention phase. This resulted in many of our paid participants not receiving a taste sample and thus not receiving the intervention. Twenty participants were excluded for this reason. Participants could choose to taste the soup, three people decided not to taste the soup, which also resulted in exclusion in this part of the analyses. Fifteen participants were left for the final analyses. The average age was 22.07 (*SD* = 1.62) and 67% of them were women. The mean score of the subsample at baseline for familiarity of salsify was: 3.6 (*SD* = 1.45) and for openness for tasting new foods: 3.53 (*SD* = 0.74).

This study was approved by the ethical commission of IPSY, UCL. Written informed consent was obtained from the participants in the subsample but not for the participants in the entire sample as their knowledge about participating in an experiment could influence the results. All data collection was anonymous however, so it was not possible to link certain participants to behavior as data was represented in proportions. When the intervention was finished, the intervention and its goal were communicated on flyers in the restaurant. In case people had questions, they could contact the researchers that conducted the study. The study was preregistered at AsPredicted.org (#9885, titled 'Nudging prebiotic vegetables, Food4Gut').

2.3. Salsify soup

The recipe of the salsify and turmeric soup was created by the chefs of the university sandwich restaurant and was chosen amongst two recipes to be the most tasteful and appealing by the main researcher and two people of the restaurant staff. Turmeric is a spice that was added to the soup to enhance its flavor and appearance. The soup contains the allergenics nuts and milk. Customers with intolerances or allergies to these foods and vegan customers could therefore not choose this soup. The nutritional information can be found in Table 1.

2.4. Design

Study 1. A “default-name” nudge was implemented in study 1. The usual names of the soups describe only the ingredients, in this case: “salsify and turmeric soup”. During intervention days, the name of the soup was changed to “Suggestion of the chef: salsify and turmeric soup” on the sign that was placed directly above the soups in the restaurant (see Fig. 2) and to “suggestion of the chef” on the label that is placed directly in front of the soup pot. During non-intervention days, the name of the soup was changed back to “salsify and turmeric soup”.

Time-line. During the first week, the salsify soup was introduced to control for a possible novelty effect of the new soup. In a previous study (Broers et al., 2018), the prebiotic vegetables were most often chosen during the first week of the intervention, which could have been due to a novelty effect. In the second, third and fourth weeks, intervention and non-intervention days alternated in such a way that every day of the week (Monday, Tuesday, Wednesday, Thursday and Friday) was included once in each research phase. Table 2 shows an overview of the timeline. This design was chosen because it controls for a possible time-effect and for the effect of weather temperature, because the difference in temperature is usually smaller from one day to another than from one week to another. We did not hypothesize a carry-over effect of the

Table 1
Nutritional information concerning the salsify and turmeric soup.

Macronutrients	*Per 100g*	Micronutrients	*Per 100g*	Ingredients	%
Energy	172 kj, 41 kcal	Vitamin D	–	Water	49.00%
Total fat	2.50 g	Vitamin E	–	Salsify	29.00%
Saturated fat	1.00 g	Vitamin C	–	Onions	12.00%
Carbohydrates	3.10 g	Vitamin B1	0.04 mg	Culinary cream	8.20%
Sugar	1.40 g	Vitamin B2	0.07 mg	Peanut oil	0.82%
Fibers	0.77 g	Vitamin B12	–	Salted vegetable broth	0.57%
Proteins	1.10 g	Calcium	31 mg	Turmeric	0.16%
Salt	0.30 g	Iodine	–		
		Iron	–		

Table 2
Timeline for the research design of study 1.

	Monday	*Tuesday*	*Wednesday*	*Thursday*	*Friday*
Week 1	Introduction	Introduction	Introduction	Introduction	Introduction
Week 2	Baseline	Default-name	Baseline	Default-name	Baseline
Week 3	CLOSED	CLOSED	Default-name	Baseline	Default-name
Week 4	Default-name	Baseline	No measures	CLOSED	CLOSED

default-name nudge when the name was removed because we did not expect to change motivational aspects such as attitudes, and the duration of the intervention was too short to expect a change of habits so the alternating approach in intervention and non-intervention days was feasible.

Study 2. In this study, a “tasting” nudge was implemented. The salsify soup was offered near the entrance on a tray with small salsify soup samples that could be consumed in one sip. The samples were offered by the first author, who was wearing the outfit of the restaurant staff. Upon entering, before they could place their orders, customers were asked if they wanted to sample the salsify soup. The sample was thus offered before customers communicated their choice to the employees. During peak hours the line was long, so customers had ample time to sample the soup. While in normal circumstances customers could also taste a soup sample at the soup stand upon request (for instance when doubting which one to choose), the nudging intervention offered the tasting option actively and to all customers standing in line.

Timeline entire sample. The first day of the study the soup was introduced in the menu. This introduction aimed to eliminate a possible novelty effect for habitual customers. It was not possible to implement a longer introduction period in this study because the sandwich restaurant normally offers one type of soup for two consecutive weeks to maximize the variety for the customers; extending this to four weeks was already difficult. The next four weekdays were considered to be the baseline phase. The next three consecutive weekdays were not considered for the study because of a practical problem with the implementation of the intervention. As a result of an implementation problem, during three days the name of the soup was changed to “suggestion of the chef”, but only on the small sign next to the soup. To ensure that there was no influence of this additional nudge, the three days were removed from the analyses. We do not expect this to have influenced the results that were obtained on consecutive days, as the name-nudge does not appear to have a carry-over effect. The next four consecutive weekdays were considered as the intervention phase, with an interruption of two holidays days during which the restaurant was closed. Finally the next four consecutive weekdays were considered as the post-intervention phase, with the tasting-intervention removed. Table 3 shows an overview of the timeline.

Timeline subsample study 2. The design of the subsample study was a within-subjects repeated measures design. Participants were asked to go to the restaurant at least once every research-phase (baseline, intervention and post-intervention, see Table 3) and keep the check to show which items they bought in the restaurant. After each research-phase they had to fill out a short questionnaire of about 5 min, which they could fill out until the next research-phase started. The questionnaire measured demographic variables, purchases, intentions, attitudes and familiarity.

To control for a placement effect of the soup and for a possible order effect of the names of the soups on the signs, these factors were held constant during all research phases in both studies. The name of the

Table 3
The timeline for the research design of study 2.2

	Monday	*Tuesday*	*Wednesday*	*Thursday*	*Friday*
Week 1	Introduction	Baseline	Baseline	Baseline	Baseline
Week 2	No measures	No measures	No measures	Tasting	Tasting
Week 3	CLOSED	CLOSED	Tasting	Tasting	Post-intervention
Week 4	Post-intervention	Post-intervention	Post-intervention	CLOSED	CLOSED

Fig. 1. The salsify soup was placed in the middle in the back among the five other soups.

Fig. 2. The name of the salsify soup was always placed on the third position.

salsify soup was always placed on the third position, and the soup itself was placed in the middle in the back among the five other soups (see Figs. 1 and 2). To control for the effect of the number of available soup options, the count of the proportion of salsify soups chosen among all soups was stopped when one soup was finished. At all measurement times, there was a varying choice of six soups of which one was always the salsify and turmeric soup. The salsify soup was therefore available during all days of the study. The offer of the other soups varied per week, it was not possible to keep this variable constant as customers are used to a varied choice over the weeks. The expected popularity of the other kinds of soups based on previous sales was held constant however. The offer for the other soups could consist of any combination of the following soups in study 1: asparagus soup, cauliflower and shrimp soup, tomato and aniseed soup, carrots and coconut milk soup, parsley soup, vichyssoise soup, carrots and coriander soup and chick peas soup. The offer for the other soups could consist of any combination of the following soups in study 2: asparagus soup, curried parsnip and apple soup, carrot and coriander soup, pumpkin with harissa sauce soup, Italian tomato soup, vichyssoise soup, cauliflower and shrimp soup, parsley soup, carrot and coconut milk soup, tomato and aniseed soup and chick peas soup.

2.5. Measures and statistical analyses

Entire samples study 1 and 2. Effects of both nudging interventions on the choice of salsify soups were assessed daily in proportions and volumes using 4 outcome measures: (1) The number of meals sold (checks), noted as n_i; (2) The number of soup sales; (3) The number of salsify soup sales; (4) the volume in liters of salsify soups that were sold (small, big or a liter). All measures were measured via the cash register software. Study 1 consisted of 10 measurement days whereas study 2 consisted of 12 measurement days.

As the values of the absolute counts and volume depend on external factors like number of customers that passed that day, transformed variables were preferred over raw measures to allow for extrapolation and comparison with other studies. Absolute counts were therefore replaced by proportions and total volume by volume per salsify soup sale. Two proportions were calculated: (1) The proportion of salsify soup sales amongst all soup sales, and (2) The proportion of all soup sales amongst all registered meals sold. The average volume of salsify soup per salsify soup sale was also calculated.

Aside from the classical descriptive statistics, the relationship between both types of interventions and outcome variables was modeled via generalized linear models. Potential predictors considered for study 1 were (1) the binary experimental variable "intervention" (intervention vs. no-intervention); (2) the quantitative variable "week" to test the effect of time, (3) the quantitative variable "weather temperature" to test the effect of temperature of the weather and (4) the multinomial variable "day of the week" (Monday, Tuesday, Wednesday, Thursday and Friday). Potential predictors considered for study 2 were (1) the multinomial experimental variable "intervention phase" (phase 1: baseline, phase 2: intervention, phase 3: post-intervention), (2) the quantitative variable "week" to test the effect of time and (3) the quantitative variable "weather temperature" to test the effect of temperature of the weather. Day of the week was not included as a predictor for study 2 because some days of the week were not present in each phase of the design, see Table 3. For relative volume, the relationship between these predictors and the outcome variables was modeled via general linear regressions for relative volume, since this measure and the model residuals were normally distributed. For proportions, the beta regression model (Ferrari & Cribari-Neto, 2004; Simas, Barreto-Souza, & Rocha, 2010) was favored over a binomial logistic regression model since the latter assumes independent trials of the same Bernoulli experiment. Because in a restaurant interactions and reciprocal influences between customers cannot be excluded, the assumption of independence between trials that is a condition for binomial logistic regression cannot be maintained. Furthermore, it is not possible to control for these interactions, since only aggregated data were collected. In contrast, the location-scale model structure of the beta regression model allows the average proportion and its variance (or its precision) to be modeled simultaneously. The beta regression model can have two sub models: (1) a regression model for the mean – similar to a linear regression model – identifying covariates that increase/decrease the value of the average proportion; (2) a regression model for the precision parameter – which is the inverse of the variance – identifying covariates that influence the dispersion of the points around this average proportion. As the scale sub-model allows heteroskedasticity, this additional assumption was not required in the beta regression model.

The models were built sequentially with a forward process based on the likelihood ratio test for nested models. Whereas day and week effects could also have been considered as random instead of fixed effects, exploring mixed models like these on a small sample size ($N = 10$ or 12 days) could lead to biased results. The analyses were performed using R software version 3.3.2 (R Core Team, 2016) and its Betareg package (version 3.1–0; Cribari -Neto & Zeileis, 2010).

2.6. Subsample study 2

Openness to taste new foods (reversed food neophobia) was measured with one item at baseline "Do you have the habit to try new foods?", measured on a 5-point Likert scale ranging from 1 = not at all, to 5 = always.

Purchase behavior was a binary variable measured for each research-phase by the collected checks of the participants, participants either succeeded (1) or not (0) to buy the salsify soup.

Intention was measured by the average of two items for each research-phase: Item 1: "My intention to eat more salsify in the future is …", measured on a 5-point Likert scale ranging from 1 (*very weak)* to 5 (*very strong*). Item 2 was based on the stages of change: "Do you have the intention of eating more salsify in the future?". The item was measured with 5 response options that represent the five stages of change: 1 (*I don't have the intention to eat more salsify)*, 2 (*I could eat more salsify*), 3 (*I have the intention to eat more salsify*), 4 (*I already started to eat more salsify during the last six months*), 5 (It *has been more than six months that I started to eat more salsify than before*). The cronbach's alpha was .81 during baseline, 0.86 during the intervention and 0.79 during the post-intervention.

Hedonic attitudes were measured with an average of four items for each research-phase concerning the taste, smell, appearance and overall pleasantness concerning salsify that were constructed for this study based on the theory of planned behavior (Ajzen, 1991). A sample item (re-coded) was: "Eating salsify is unpleasant." The items were measured on a 5-point Likert scale ranging from 1 (*don't agree at all)* to 5 (*totally agree*). The Cronbach alpha was .81 during baseline, 0.71 for during the intervention and 0.82 during post-intervention.

Familiarity was measured by one item measuring overall familiarity: "Do you know what is salsify?" measured on a 5-point Likert scale ranging from 1 (*don't agree at all)* to 5 (*totally agree*).

Cochran's Q test was performed to see the change over time (baseline vs. intervention vs. post-intervention) for the binary variable purchase behavior. Friedman's test was performed at baseline vs. intervention vs. post-intervention for intention, attitudes and familiarity. Friedman's test was preferred over repeated measures ANOVA because of the small sample size ($N = 15$) and the discrete ordinal nature of the variables. When a significant difference was detected with the Friedman's test, several Wilcoxon tests with a Bonferroni correction were used to identify where the significant difference(s) is/are.

A binary logistic regression was performed to test whether change in attitudes, familiarity or intention from baseline to intervention could predict the purchase of the salsify soup at the intervention-phase. Those analyses were performed using SPSS software, version 25.

3. Results

3.1. Descriptive findings

Study 1. During the 10 measurement days of study 1, an average of 186 checks were registered at the restaurant per day ($SD = 14.09$), with an average of 86.40 servings of soups sold per day ($SD = 25.20$) and an average of 13.40 servings of salsify soups sold per day ($SD = 5.56$).

The average daily percentage of salsify soups sold amongst all soups sold during no-intervention days (5 days) was 9.7% (SD = 3.6%, min = 5.4%; max = 14.7%) and during intervention days (5 days) the average was 17.2% (SD = 4.3%, min = 10.2%; max = 20.8%). See Fig. 3.

The average daily proportion of all soups sold amongst the total checks during no-intervention days (5 days) was 45.7% (SD = 13.5%, min = 21.9%; max = 54.6%) and during intervention days (5 days) the average was 46.2%, (SD = 11.6%, min = 29.5%; max = 59.4%).

The daily average volume of salsify soup per serving was 0.39 L during no-intervention days, and 0.37 L during intervention days.

Study 2. During the 12 measurement days of study 2, an average of 151 checks were registered at the restaurant each day ($SD = 26.15$), with an average of 77.75 servings of soups sold per day ($SD = 35.94$) and an average of 19.08 servings of salsify soups sold per day ($SD = 15.26$).

The average daily percentage of salsify soups sold amongst all soups sold during baseline (4 days) was 11.0% (SD = 4.1%, min = 6.3%; max = 15.1%), during intervention (4 days) the average was 42.9%, (SD = 5.5%, min = 36.7%; max = 50.0%) and during post-intervention (4 days) the average was 18.6% (SD = 4.9%, min = 12.3%; max = 24.3%). See Fig. 4.

The average daily proportion of all soups sold amongst the total checks during baseline (4 days) was 38.6% (SD = 14.0%, min = 26.9%; max = 58.1%), during intervention (4 days) the average was 68.1%, (SD = 6.3%, min = 62.4%; max = 76.0%) and during post-intervention (4 days) the average was 36.8% (SD = 7.1%, min = 36.8%;

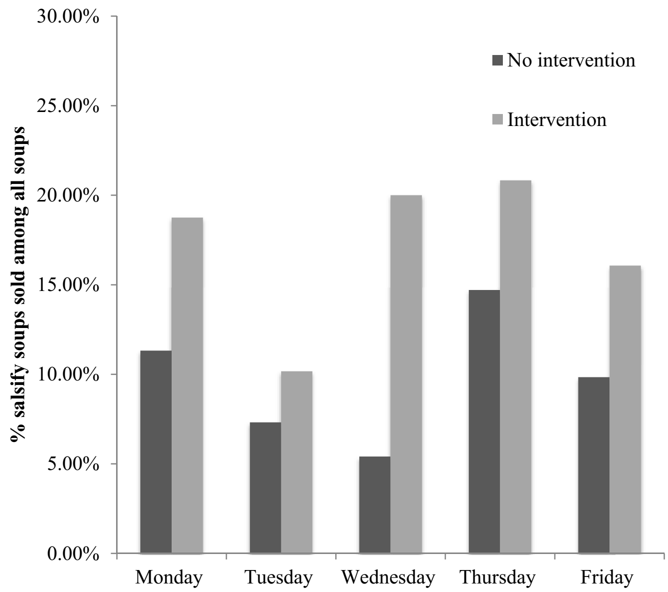

Fig. 3. Percentage of salsify soups sold among all soup customers for study 1.

max = 52.5%).

The daily average volume of salsify soup per serving was 0.43 L during baseline, 0.37 L during intervention and 0.37 L during post-intervention.

During the four days of the intervention, the customers tasted 320 samples of salsify soup. During the same four days, 155 salsify soup sales and 702 checks were recorded.

Independent sample t-tests comparing both restaurants on the absolute number of checks, soup and salsify soup servings during all measurement days show that there is a significant difference only between the averages of the checks of both restaurants. More checks were sold on average in study 1 (10 days) compared to study 2 (12 days), $t(20) = -3.81, p < .01$. The absolute number of soup servings was not significantly different between study 1 and 2, $p = .53$, and neither was the absolute number of salsify servings, $p = .25$. Independent sample T-tests comparing both restaurants on the proportion of salsify soups amongst all soups ($p = .65$) and the proportions of all soups amongst all checks ($p = .47$) at baseline, do not show a significant difference.

3.2. Regression analyses

Study 1. A beta regression analysis was performed with intervention phase, week, day and weather temperature as predictor variables and the daily *proportion of all soups sold* amongst all checks as the dependent variable. After forward selection, the final beta regression model shows two significant effects on the location sub-model, and one significant effect on the precision sub-model.

A significant negative effect ($\hat{\beta} = -0.15$, $z = -8.56$, $p < .001$) on the average proportion of all soups sold is observed for week on the location sub-model. The odds of choosing a soup at a later time in the experiment are 0.86 lower (95% CI [0.83; 0.89]) compared to earlier days. Another negative significant effect ($\hat{\beta} = -0.05$, $z = -2.94$, $p < .01$) was observed for weather temperature on the location sub-model. The odds of choosing a soup during days with higher temperatures are 0.95 lower (95% CI [0.92; 0.98]) compared to days with lower temperatures.

A significant overall effect on the average proportion of all soups is observed for days of the week ($\chi^2_{(4)} = 52.37$, $p < .001$) on the precision sub-model. Significant variability differences are observed when comparing Monday to Thursday. This is probably the case because more people purchased soups on Thursdays compared to Mondays, decreasing its variability. We accounted for the number of people purchasing soups by performing the analyses on the proportions instead of the absolute numbers.

The pseudo R^2 of the location sub-model is 0.90, which indicates a good model fit. The pseudo R^2 evaluates the goodness-of-fit of the location sub-model and ranges from 0 to 1 with higher values indicating a better model fit. The main model results are presented in Table 4.

A beta regression analysis was performed with intervention phase, week, day and weather temperature as predictor variables and the daily *proportion of salsify soups sold* amongst all sold soups as the dependent variable. After forward selection, the final beta regression model shows

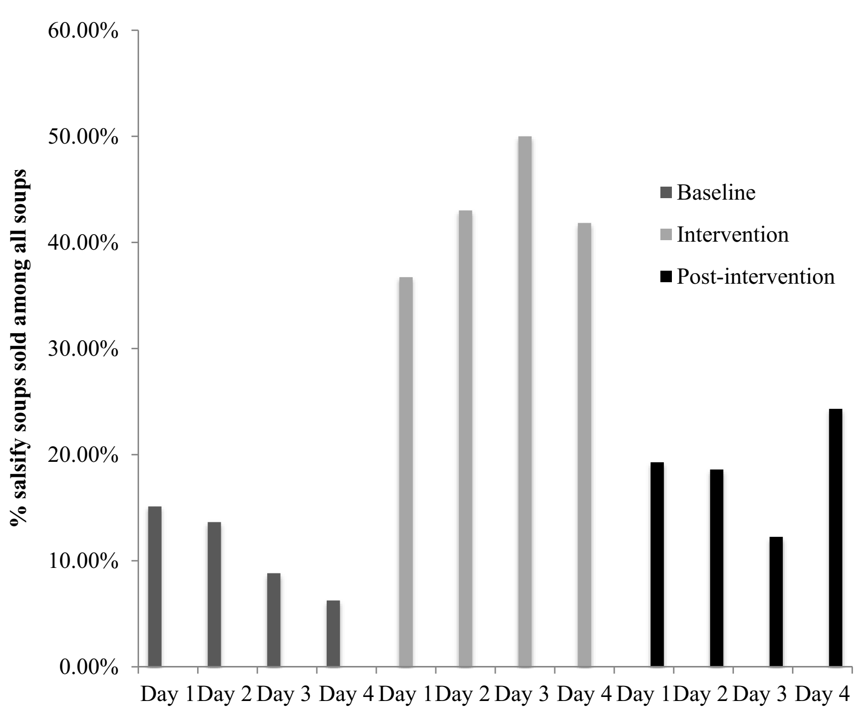

Fig. 4. Percentage of salsify soups sold among all soup customers for study 2.

Table 4
Final beta regression model (location sub-model and precision sub-model) including only the significant predictors for the daily proportion of all soups sold amongst all checks for study 1.

Location Sub-Model	Estimate	Std. error	Z	**P-Value (2-tailed)**	95% Conf. Int.	
					Lower	Upper
Week	-0.15	0.02	-8.56	< .001	- 0.19	- 0.12
Weather temperature	-0.05	0.02	-2.94	< .01	- 0.09	-0.02
Precision Sub-Model	**Estimate**	**Std. error**	**Z**	**P-Value (2-tailed)**	**95% Conf. Int. Lower**	**Upper**
Days of the week						
Monday	.	.	.	.	.	.
Tuesday	- 1.22	1.40	- 0.87	.38	- 3.96	1.52
Wednesday	1.61	1.41	1.14	.25	-1.16	4.37
Thursday	28.08	1.48	18.91	< .001	25.17	30.99
Friday	0.42	1.41	0.30	.76	-2.34	3.18

one significant effect on the location sub-model, and one significant effect on the precision sub-model.[1]

A significant positive effect ($\hat{\beta} = 0.53$, $z = 4.67$, $p < .001$) on the average proportion of salsify soups sold is observed for intervention days (default-name nudge) on the location sub-model. The odds of choosing a soup during intervention days are 1.70 higher (95% CI [1.36; 2.12]) compared to no-intervention days. A positive significant effect ($\hat{\beta} = 1.65$, $z = 3.70$, $p < .001$) was observed for weather temperature on the precision sub-model. The variability of the proportion of salsify soups sold is inversely proportional to the temperature: the variance is lower when the temperature is high.

The pseudo R^2 of the location sub-model is 0.38, which indicates an average model fit. The main model results are presented in Table 5.

3.3. Introduction phase check

The introduction week was not used in previous models to prevent a potential novelty effect observed in a previous study (Broers et al., 2018). To evaluate the pertinence of this preventive measure, introduction week data were integrated in the final model on the daily proportion of salsify soups sold amongst all sold soups. No significant novelty effect has been detected, neither when introduced as continuous time covariable ($\hat{\beta} = 0.02$, $z = 0.36$, $p = .719$), nor when introduced as a new level of intervention ($\hat{\beta}_{Intro\ vs\ No\ Interv.} = -0.12$, $z = -0.42$, $p = .673$). However, the introduction of these new data did not change the conclusion on the effect of intervention ($\hat{\beta}_{Final\ model} = 0.53$, $z = 4.67$, $p < .001$), neither when the introduction week is introduced as a third level of intervention ($\hat{\beta}_{Interv.\ vs\ No\ Interv.} = 0.54$, $z = 1.98$, $p = .048$), nor when 'no intervention' and 'introduction' were grouped together ($\hat{\beta}_{Interv.\ vs\ (No\ Interv.+Intro)} = 0.61$, $z = 2.71$, $p = .007$). Since no temperature data were recorded on this introduction week, the final model without this data is used for further interpretation despites no apparent novelty effect.

Study 2. A beta regression analysis was performed with intervention phase, week and weather temperature as predictor variables and the daily *proportion of all soups sold* amongst all checks as the dependent variable. After forward selection, the final beta regression model shows one significant effect on the location sub-model, and one significant effect on the precision sub-model.

A significant negative effect ($\hat{\beta} = -0.17$, $z = -41.12$, $p < .001$) on the average proportion of all soups sold is observed for weather temperature on the location sub-model. The odds of choosing a soup during days with higher temperatures are 0.84 lower per change of 1 °C (95% CI [0.84; 0.85]) compared to days with lower temperatures (1 °C less). A negative significant effect ($\hat{\beta} baseline\ vs\ intervention = -5.11$, $z = -5.15$, $p < .001$, $\hat{\beta} baseline\ vs\ post-intervention = -5.47$, $z = -5.52$, $p < .001$) was observed for the intervention phase on the precision sub-model. The variability of the proportion of sold soups chosen is the lowest during baseline and is significantly different from the variability observed during intervention and post-intervention. During the intervention phase there were twice as many people visiting the restaurant compared to the baseline. This was likely due to the difference in the weather temperature, which could explain the difference in variability. However, during post-intervention, the number of customers was equal to baseline.

The pseudo R^2 of the location sub-model is 0.86, which indicates a good model fit. The pseudo R^2 evaluates the goodness-of-fit of logistic models and ranges from 0 to 1 with higher values indicating a better model fit. The main model results are presented in Table 6.

A beta regression analysis was performed with intervention phase, week and weather temperature as predictor variables and the daily *proportion of salsify soups sold* amongst all sold soups as the dependent variable. After forward selection, the final beta regression model shows one significant effect on the location sub-model. A significant overall effect on the average proportion of sold salsify soups is observed for the *intervention-phase* ($\chi^2_{(2)} = 26.33$, $p < .001$): the average proportion of sold salsify soups increases during the tasting compared to baseline ($\hat{\beta}_{tasting\ vs\ baseline} = 1.82$, $z = 8.87$, $p < .001$), increases during post-intervention compared to baseline ($\hat{\beta}_{post-intervention\ vs\ baseline} = 0.63$, $z = 2.83$, $p < .01$), and decreases during post-intervention compared to during the tasting ($\hat{\beta}_{post-intervention\ vs\ tasting} = -1.19$, $z = -6.71$, $p < .001$). The odds of choosing a salsify soup during tasting days are 6.17 higher (95% CI [4.13; 9.22]) compared to baseline days. The odds of choosing a salsify soup during post-intervention days are 1.87 higher (95% CI [1.21; 2.89]) compared to baseline days. The odds of choosing a salsify soup during post-intervention days are 0.30 lower (95% CI [0.21; 0.43]) compared to tasting days.

The pseudo R^2 of the location sub-model is 0.86, which indicates a good model fit. The main model results are presented in Table 7.

Table 5
Final beta regression model (location sub-model and precision sub-model) including only the significant predictors for the daily proportion of salsify soups sold amongst all soups sold for study 1.

Location Sub-Model	Estimate	Std. error	Z	**P-Value (2-tailed)**	95% Conf. Int.	
					Lower	Upper
Intervention						
No default-name	.	.	.	.	.	.
Default-name	0.53	0.11	4.67	< .001	0.31	0.75
Precision Sub-Model	**Estimate**	**Std. error**	**Z**	**P-Value (2-tailed)**	**95% Conf. Int. Lower**	**Upper**
Weather temperature	1.65	.45	3.70	< .001	0.78	2.52

[1] The final model presented extremely low standard errors (Std. Err. < 0.0001) and, consequently, extremely high Z statistics (Z > 1000) and narrow confidence intervals (same rounded values on both bounds). After investigation, it appeared that the last 2 days of data collection (one intervention day, one non-intervention day) presented extremely high temperature (> 22 °C) compared to the previous days (from 12 to 16 °C). It strongly influenced the model when entering the precision sub-model by controlling almost all the variability. Results were still statistically correct but clearly over fitted and potentially biased. The results presented here are obtained by the same final model estimated without those 2 extreme points. It results in estimates aligned with values observed in the previous steps of the forward procedure and in less precise but more realistic confidence intervals, especially for the name change.

Table 6
Final beta regression model (location sub-model and precision sub-model) including only the significant predictors for the daily proportion of all soups sold amongst all checks for study 2.

Location Sub-Model	Estimate	Std. error	Z	P-Value (2-tailed)	95% Conf. Int.	
					Lower	Upper
Weather temperature	- 0.17	0.00	-41.12	< .001	- 0.18	- 0.16
Precision Sub-Model	**Estimate**	**Std. error**	**Z**	**P-Value (2-tailed)**	**95% Conf. Int. Lower**	**Upper**
Intervention phase						
Baseline	.	.	.	.	.	.
Tasting	- 5.11	1.00	- 5.15	< .001	- 7.06	- 3.17
Post-intervention	- 5.47	1.00	- 5.52	< .001	-7.41	- 3.53

Table 7
Final beta regression model (location sub-model) including only the significant predictors for the daily proportion of salsify soups sold amongst all soups sold for study 2.

Location Sub-Model	Estimate	Std. error	Z	P-Value (2-tailed)	95% Conf. Int.	
					Lower	Upper
Intervention phase						
Tasting vs. baseline	1.81	0.21	8.87	< .001	1.42	2.22
Postintervention vs. baseline	0.63	0.22	2.83	< .01	0.19	1.06
Postintervention vs. Tasting	- 1.19	0.18	- 6.71	< .001	- 1.54	- 0.84

3.4. Subsample study 2

Salsify soup purchase. Of the fifteen participants that received the tasting intervention, two participants did not have behavioural data that showed their purchases in the restaurant for the post-intervention week because of a misunderstanding concerning the exact dates of each intervention phase so they were excluded for the first analysis. Thirteen participants registered their purchases during each research phase. The dependent variable was a binary variable measured as either a success (1) or failure (0) of buying salsify soup. The average for each research-phase were at baseline ($M = 0.08$), intervention ($M = 0.31$) and post-intervention ($M = 0.15$). Cochran's Q test determined that there was no statistically significant difference in the proportion of participants who bought a salsify soup over time, $\chi^2(2) = 2.80$, $p = .25$.

Intention. The Friedman test shows that intentions of participants to consume salsify soup in the future changed significantly over the three weeks of the intervention, $\chi 2(2) = 7.43$, exact $p = .02$. Wilcoxon tests were used to explore these findings further. A Bonferroni correction was applied, so all effects are reported at a 0.0167 level of significance. It appeared that intention increased significantly from baseline ($Mdn = 1.50$) to intervention ($Mdn = 2.50$), $T = 5$, $r = -0.60$, $p = .01$, increased significantly from baseline ($Mdn = 1.50$) to post-intervention ($Mdn = 2.50$), $T = 11$, $r = -0.58$, $p = .01$. But it did not change significantly from intervention to post-intervention, $T = 15.5$, $r = -0.09$, $p = .41$.

Hedonic attitudes. The attitudes of participants concerning salsify did not change significantly over the three weeks of the intervention, $\chi 2(2) = 4.04$, exact $p = .14$.

Familiarity. The participants' familiarity concerning salsify did not change significantly over the three weeks of the intervention, $\chi 2(2) = 2.06$, exact $p = .39$.

Binary logistic regression analysis. A binary logistic regression model with familiarity, intentions and attitudes from the baseline-phase to the intervention-phase as predictor variables and purchase behavior at the intervention-phase as a dependent variable gave no significant results (p familiarity = .25, p intentions = .91, p attitudes = .47).

4. Discussion and conclusion

The aim of this study was to investigate whether the effectiveness of nudging is limited to certain characteristics of the nudged product by focusing on a specific product (salsify soup) within a broader category (soups). For testing these effects, two field trials were organized in two similar university restaurants in the same time period. In the first study, the name of the salsify soup was changed to a default option, "suggestion of the chef", to increase the choice for a specific product (salsify soup) but not for the general category it belongs to (all soups). In the second study, a tasting intervention of the salsify soup was implemented, whereby a positive effect was expected for both the choice for the specific product (salsify soup) and the general category (all soups). Additionally, in a subsample of study 2, change in intentions, familiarity, attitudes and purchase behavior were measured via weekly questionnaires to investigate the underlying processes of the behavior.

4.1. Study 1

Proportion of salsify soups amongst all soups. The results of study 1 showed that the default-name nudge significantly increased the proportion of salsify soups that were sold when controlling for the temperature of the weather, day of the week and time (week). In the precision-model the control factor temperature of the weather, showed that on warmer days the variability of the proportion of salsify soups sold decreases. Although the average model fit indicated by the level of the pseudo R^2 (0.38) suggests that there are probably other covariates that are relevant to model the outcome, the odds of choosing a salsify soup during default-name days were 1.70 higher than during non-intervention days. This finding confirms our hypothesis that changing the default option leads to an increase in the choice for salsify soup. It is in line with the results of previous research applying a change of the default portion size (Freedman & Brochado, 2010) and a default dish (Just & Price, 2013; Saulais et al., 2016). Admittedly, other studies (e.g., Dos Santos et al., 2018) showed that changing the name of an unfamiliar vegetable dish to "dish of the day" has no impact on consumption, but the latter study targeted familiar vegetables (peas, sweet corn) in an unfamiliar format (vegetable balls), and compared them to meat/fish dishes. Therefore, we may conclude that a default-name nudge is not strong enough to increase the choice for a vegetarian dish over meat/fish, but that it can increase the choice for salsify soups amongst a range of vegetable soups. On the other hand, the different results may also be due to the fact that the participants in dos Santos et al.'s (2018) study were adolescents and older people with high levels of food neophobia. The level of food neophobia in the current sample seemed considerably low however; Food Neophobia was measured with one item in a subsample of the entire sample in study two and showed a low average. Food neophobia was not measured in both entire samples however as it might have alerted customers that an experiment was implemented which could have altered their natural behavior. Food neophobia is the reluctance to eat and/or avoidance of novel foods (Pliner & Hobden, 1992). Our results contradict the suggestion by Broers et al. (2018) that nudging specific, unfamiliar food may be less effective. However, the result may again depend on the type of nudge or on the customers' level of food neophobia. Indeed, Broers et al.'s (2018) study took place in a restaurant where novel, unfamiliar foods are not often served, while in this study the sandwich-restaurant where the study was conducted often serves soups made of unfamiliar vegetables such as parsnip, so the customers are more used to trying novel foods. It is also possible that the customers in the current sample do not consider salsify to be unfamiliar. In the subsample it seemed that salsify was actually quite familiar but there might have been a selection-bias in this sample. In a previous correlational study in a student sample, it did seem however that salsify was really unfamiliar with 35% of the students not recognizing salsify at all (Broers et al., 2018b). So, it is possible that either the effectiveness of the default-name nudge for unfamiliar foods depends on the level of food neophobia of the target audience or that salsify was actually more familiar than expected in the current sample but this will have to be tested in future research.

Proportion of all soups amongst all checks. As expected, study 1 showed that the default-name nudge did not have an effect on the overall quantity of soup sold. So, while the default-name nudge increased the specific product, it did not increase the general category. This implies that it is possible to nudge a specific product (salsify soup) without increasing other products of its category (soups). This finding contradicts the suggestion by Broers et al. (2018) that it may not be possible to nudge a specific product within a certain category. Yet while specificity does not appear to be a barrier for the default-name nudge, it could still be a problem for other types of nudges. Also, it may be the case that the general category was not influenced by the default-name nudge because changing the name of a product also makes the nudge itself more specific.

On the other hand, we did find a negative significant influence of temperature of the weather and time (week) on the purchase of soups: The odds of choosing a soup during days with higher temperatures were 0.95 lower than on days with lower temperatures. This is not surprising, as on warm days people tend to prefer colder rather than hot food like soup. Furthermore, the odds of choosing soup at a later stage during the experiment were 0.86 lower than at the beginning. This negative effect may be related to weather temperature, as during the last two days of the study the temperature increased by 9.25 °C compared to the eight measurement days before (23 C° compared to 13.75C° on average). The pseudo R^2 is 0.90, which indicated a good model fit so it is not likely that many other covariates are relevant to model the outcome. The control factor “day of the week” showed that the precision increased during Thursdays in comparison to Mondays. For the category “soups” it seems therefore that only the control factors weather temperature, day of the week and time (week) predict soup consumption, and not the default-name intervention.

4.2. Study 2

Proportion of salsify soups amongst all soups. The results of study 2 showed that actively offering a taste sample to all customers significantly increased the proportion of salsify soup chosen from among all soups as compared to the baseline, when controlling for weather temperature and time (week). When the tasting intervention was stopped, the proportion of salsify soups decreased again but was still significantly higher than at baseline. The odds of choosing a salsify soup during tasting days are 6.17 higher than the baseline. The odds of choosing a salsify soup during post-intervention days 0.30 lower than on intervention days but 1.87 higher than on baseline days. As the pseudo R^2 of 0.86 indicated a good model fit, it is unlikely that many other covariates are relevant to model the outcome. Our findings are in line with those of Olstad et al. (2014), who showed that a combined nudge consisting of descriptive names with taste sampling increased sales of healthy food items by 30% in the subsample. It did not increase healthy food selection in the entire sample however. The effect of tasting might have been less strong in this study because it involved children, who usually have more neophobic tendencies (Olstad et al., 2014). Schickenberg et al. (2011) found a positive effect of offering taste samples of unfamiliar foods to neophobic adolescents, but only a third of the experimental sample agreed to sample the food. In Olstad's study (2014) all customers were analyzed so this may have decreased the effect of the food tasting. In the current study, data were analyzed of all customers too however, and the number of samples tasted was about half the number of customers. However, it is difficult to say how many individual customers tasted the soup, as some customers might have returned to the restaurant without tasting the soup again, or tasted the soup several times. In the current study, the tasting nudge seems to have been strong enough to generate a significant effect in the entire sample, including people that had not tasted. In the subsample, customers were excluded if they did not taste the salsify soup and there was no significant effect of the intervention. There was no increase in familiarity and attitudes concerning salsify, but an increase in intention to eat salsify in the future was found. However because of the small sample size it is not possible to make any conclusions based on this data. Future research should replicate this study in order to allow for more reliable conclusions.

In accordance with study 1, study 2 confirms that a tasting nudge can effectively increase the choice for a specific product within a category, contradicting the hypothesis by Broers et al. (2018). Similar to study 1, this difference could be due to the different type of nudge that was implemented or to the low food neophobia of the participants which will have to be tested in future research.

Proportion of all soups amongst all checks. The results of study 2 showed that while increasing the proportion of choice for salsify soup, the tasting intervention did not have an effect on the purchase of all kinds of soup. This is surprising, as it was expected that offering a taste sample to all customers would increase the proportion of customers taking any soup by association. These results contradict again the hypothesis that nudging may not increase a specific product, but only a category of products (Broers et al., 2018). There was however a considerable overlap between intervention days and the weather temperature, as it was colder on intervention days. Similar to study 1, the results of study 2 also show a negative significant influence of the temperature of the weather on the purchase of soups. The odds of choosing a soup on days with higher temperatures were 0.84 lower than on cooler days. The weather temperature could have removed part of the explained variance of the intervention-phase so this should be reassessed in another study. However, this lack of a “generalization” effect could also be specific to this type of nudge, as the tasting samples offered were all of the specific soup, so the nudge itself was more targeted to a particular product than in previous research. So, while the specificity of a product does not appear to be a barrier for finding an effect of the tasting nudge, it may be a barrier for other types of nudges, similar to the default-nudge.

The pseudo R^2 is 0.86, which indicated a good model fit so it is not likely that many other covariates are relevant to model the outcome. The precision did increase during baseline in comparison to intervention and post-intervention. For the category “soups” it seems therefore that only the control factors temperature of the weather and the variability of the intervention-phase predict soup consumption, and not the tasting intervention.

4.3. Limitations

A first limitation for study 1 was the fact that it was not possible to measure a carry-over effect of the nudge. The design that alternated default-name days and no-intervention days was better controlled for varying weather temperatures and time, but there might have been a carry-over effect of the nudge on the subsequent day, which we could not measure. Despite this possible carry-over effect, we found a significant difference between intervention and non-intervention days that might even be stronger if a possible carry-over effect could be accounted for in a different type of design. Due to the expected carry-over effect of the tasting nudge it was not possible to alternate intervention and non-intervention days in study 2. This resulted in a less controlled design but temperature of the weather and time were taken into account as control factors. It was not possible to take the days of the week into account because the measurements were taken on different weekdays. There is no theoretical reason, however, to expect an effect of the day of the week. It was also not possible to implement an introduction week because the design consisted of more measurement days than study 1. It was not possible to propose the salsify soup for more than four weeks because normally the choice for soup varies each week. It was only possible to implement one introduction day, but the results do not show any evidence for a novelty effect on that day. It could be possible that the differences between baseline and intervention were even higher when implementing an introduction week. Study 1 showed also no proof of a novelty-effect however so it is possible that in this study the introduction phase was not necessary. The introduction phase served as an additional control however so this should not be a problem for the measures obtained on the following days.

The small sample size of the final subsample that received the intervention prevents us of making conclusions regarding the processes underlying the behavior chance, such as increases in attitudes, familiarity and intentions. Future studies could replicate the study with a bigger sample, keeping in mind that all customers should be able to receive the intervention and thus making sure there is enough target food to last for the entire foodservice. In practice, this can be difficult though because it is not preferred to have food waste at the end of the service. Furthermore, customers in the subsample knew they were participating in an experiment which could have lead them to adapt their behavior (Hawthorne effect).

A limitation for both studies is that, for practical reasons, the dependent variables were operationalized via food sales as recorded by the cash desk computer. These are only proxy measures of the actual food consumption. Future studies should measure the actual consumption. This can be done for example by tracking people and measuring the weight of the plates before and after consumption. Tracking customers would also provide more information about the characteristics of the sample (e.g., with regard to food neophobia) and could provide information about their experience of the intervention (e.g., did they actually taste the soup sample in study 2). Customers would know they are being observed in this case however which could lead to a Hawthorne effect. Another limitation is that each intervention was only implemented for four to five days. While a longer study period would have provided more insight into the long-term effects of the interventions, it was not possible to offer the soup for a longer time, because the restaurant likes to offer a varied choice to their customers. Also, while salsify soup was offered throughout the experiment, the other kinds of soup varied, which means that the variety of the daily offer may have affected the outcomes. To counteract this, the expected popularity of the other kinds of soup on offer was held constant during the experiment. Finally, as the clientele of the restaurant varied, the composition of the sample was not constant over the weeks. Some customers may have been included in the sample several times, while others may have been included in only one condition. However, this is not a problem for the analysis as the beta regression model used for the data analysis allows observations to be dependent. Because of this necessary study design, we were not able to collect information on the characteristics of the participants.

5. Conclusion

To our knowledge, no previous research has tested the hypothesis that the effectiveness of nudging depends on the specificity of the product. In contrast to previous findings (Broers et al., 2018) that showed that a cue-to-action nudge and a combined cue-to-action/proximity nudge did not increase choice for specific, unfamiliar vegetables (salsify, Jerusalem artichoke, artichokes) but did increase the general category (vegetables), a default-name nudge and a tasting nudge did seem to increase the choice for a specific product (salsify soup) without increasing the choice for a general category (soup). It is very likely though that the effectiveness of nudges for unfamiliar foods is influenced by the level of food neophobia amongst the members of the target group, which should be investigated in future, research. Furthermore, it is also possible that certain types of nudges are more effective than other types for specific, unfamiliar products.

Conflicts of interest

None.

Funding

This research was supported by an Excellence research grant funded by the Walloon region (Belgium), (FOOD4GUT: Innovative nutrition research on obesity based on colic nutriments. Biological, behavioral and societal aspects, project # 1318148).

Acknowledgements

The authors thank Garry van Loo (manager of the university restaurant), Frederic Henry and Véronique Maekelbergh with all other restaurant staff, for their contributions to this study. We also thank both Elodie Lebrun and Gelsomina Salvia for their help with the data collection.

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