

Effects of health-related episodic future thinking on calorie intake and eating initiation with novelty seeking as a moderator

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Abstract

This study examines a newly developed intervention inspired by episodic future thinking (EFT), called Health-related Episodic Future Thinking (H-EFT). In EFT, individuals vividly imagine themselves in future scenarios in a personally meaningful way, which may support healthier choices. H-EFT extends this approach by incorporating long-term health goals into the EFT cues. Because this approach has primarily been studied in overweight or obese populations, we tested whether it generalises to a student sample. In a laboratory setting, a total of 158 first-year psychology students at the University of Groningen took part in an experiment examining eating behaviour. Participants were predominantly female (80.4%) and ranged in age from 18 to 29 years (M = 19.67, SD = 2.13). Eating behaviour was operationalised as eating initiation and subsequent calorie intake. Novelty Seeking (NS) was examined as a potential moderator, as higher NS has been linked to poorer outcomes in other behavioural interventions. Results showed no effect of H-EFT on either eating initiation or calorie intake. Furthermore, NS did not moderate the relationship between the intervention and eating behaviour. In the present study, this approach did not generalise to a student sample, underlining that EFT outcomes may be context dependent.

Keywords: eating behaviour, health-related episodic future thinking, novelty seeking

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Rates of overweight and obesity have risen over recent decades. Adult obesity more than doubled between 1990 and 2022. In 2022, an estimated 2.5 billion adults were overweight, including 890 million living with obesity (World Health Organization: WHO, 2025). Researchers increasingly attribute this upward trend to broad lifestyle and dietary shifts, including greater exposure to high-calorie foods and changes in daily routines (Ding et al., 2023). This includes increased calorie consumption compared to previous generations and a more sedentary lifestyle (Middleton et al., 2013). Furthermore, in today's food environment, the widespread availability of inexpensive, highly palatable snacks means they are often consumed on top of regular meals. Contemporary food environments and increasingly sedentary routines can make it difficult to sustain healthy choices over time. The present study examines whether encouraging future-oriented thinking can help reduce overeating.

Changing unhealthy behaviours, including overeating, often requires choosing between immediate gratification and the longer-term benefits of healthier routines and overall well-being. This trade-off is commonly captured by delay discounting, defined as the decline in the present value of a reward as the delay to its receipt increases (Odum, 2011). Episodic Future Thinking (EFT) has been proposed to improve health outcomes and encourage better choices by reducing delay discounting. In other words, long-term rewards are discounted less as the delay increases, relative to short-term gratification (Atance & O'Neill, 2001). By making future outcomes more concrete and emotionally meaningful, EFT may help connect present choices to anticipated future experiences (O'Donnell et al., 2017). Research suggests that EFT interventions are often associated with improvements across a range of domains,

including substance use, school engagement, and the promoting of healthier grocery purchasing (Collado & Stokes, 2023; Wang & Pan, 2025; Ding et al., 2023).

In their meta-analysis of EFT in food-related contexts, Ding et al. (2023) noted that conclusions about efficacy are complicated by substantial heterogeneity across studies, including differences in experimental settings, participant characteristics, and methodological implementation (e.g. cue valence, practice strategy). Specifically looking at single-session EFT interventions in food-related contexts, outcomes of calorie intake were analysed in contexts ranging from a naturalistic to laboratory setting. Furthermore, the samples used in the studies were diverse, ranging from healthy young adults to individuals who are overweight or with obesity. Taken together, Ding found that single-session EFT intervention was associated with a pooled reduction on calorie intake, though only two of the five studies cited a significant result. This pattern indicates that the efficacy of EFT interventions is likely context dependent.

Three single-session EFT interventions included in Ding et al. (2023) illustrate that reductions in calorie intake have been observed across different cue characteristics, samples, and settings. Dassen et al. (2015) conducted a controlled, single-session laboratory study in a young, healthy sample with a robust sample size. Participants completed EFT or an episodic past-thinking control task, and the episodic content was manipulated to be either food-related or unrestricted. Although EFT reduced delay discounting regardless of content, reductions in snack-related caloric intake emerged only when the future simulations were food-related. This indicates that cue specificity can be critical for translating EFT effects into changes within the targeted behavioural domain. To contextualise these findings, it is useful to consider a conceptually related single-session study conducted in a different population and setting and employing different EFT cue characteristics. O'Neill et al. (2015) analysed the impact of EFT on calorie intake in a naturalistic setting, in overweight or obese women who

reported wanting to improve their eating habits. In their EFT manipulation, they incorporated long-term health goals in the EFT cues. First, they were asked to list long-term health goals and future events they expected or planned to take place. Finally, the experimenter helped participants link their selected health goal to a personally anticipated future event by inviting them to vividly imagine themselves at the future event having worked towards the health goals. Then, participants were invited to a food-court, where they could buy food for themselves as compensation for participating in the experiment. After they were done eating, the food was analysed on calorie intake and macronutrients (i.e. fats, carbohydrates, protein). The results showed that participants in the EFT group ate less calories, less fats, while eating more protein than the control condition. Although these studies assessed calorie intake in diverse ways, both reported reduced calorie intake following EFT. Similarly to O'Neill, Daniel et al. (2013) conducted an EFT experiment in a sample of women with overweight or obesity, with the additional inclusion criterion that participants reported a desire to control their weight. Their EFT methodology differed from O'Neill's in that no long-term health goals were incorporated into the EFT cues and the experiment was conducted in a laboratory setting. In their experiment they also found that calorie intake decreased in the EFT condition.

The relevant literature supports the incorporation of long-term health goals in EFT cues to reduce calorie intake in women with overweight or obesity. Furthermore, Dassen et al. (2015) demonstrated that EFT can also reduce intake in a young sample with minimal selection criteria. However, neither Ding et al. (2023) nor Dassen et al. found uniformly consistent effects across EFT methodologies. In Ding et al. (2023), pooled benefits co-occurred with substantial heterogeneity, emphasising the importance of comparing methodological implementation across studies.

The current study builds on the relevant literature by testing the efficacy of an EFT intervention by introducing a single session health-focused Episodic Future Thinking (H-EFT). The intervention utilises the incorporation of long-term health goals on eating behaviour for a healthy young adult sample in a laboratory setting. Here, we examine this health-goal component in a young, healthy student sample, similar to Dassen et al. (2015). Contrary to O'Neill et al. (2015) and Daniel et al. (2013), the efficacy of incorporating health goals is examined in a healthy young adult sample. Furthermore, the effectiveness of the H-EFT intervention is examined using two behavioural outcomes: eating initiation (i.e., whether an individual began to eat) and subsequent caloric intake. In line with Ackermans et al. (2023), eating initiation captures the decision to begin eating, whereas calorie intake reflects the amount consumed once eating has started. The H-EFT intervention is expected to reduce eating initiation and subsequent caloric intake. Accordingly, the following hypothesis is proposed:

H1: The Health Episodic Future Thinking intervention reduces the likelihood of (a) eating initiation and (b) reduce calorie intake.

More broadly, EFT research suggests that its effects vary not only across contexts (e.g., study designs and populations) but also due to individual differences. Although few studies have systematically examined moderators, available evidence suggests that such differences can shape outcomes. For example, Lin and Epstein (2014) found that EFT primarily reduced delay discounting among participants with higher working memory capacity. Furthermore, Benoit et al. (2011) reported stronger EFT effects among individuals with lower consideration of future consequences. Taken together, these findings suggest that individual differences may partly determine who benefits from EFT, motivating the examination of potential moderators.

In this paper, the personality trait Novelty Seeking (NS) is examined as a potential moderator of H-EFT effectiveness. NS is a personality trait from the TPQ reflecting an inherited tendency toward behavioural activation in response to novel or rewarding stimuli, characterised by impulsivity, curiosity, and low frustration tolerance (Cloninger, 1987). To motivate NS as a plausible candidate moderator, it is therefore useful to consider findings from other therapeutic contexts in which NS has been linked to intervention outcomes. NS has been associated with a broad range of psychopathology, including ADHD and depression (Smalley et al., 2009; Qi et al., 2021), as well as reduced adherence to behavioural or treatment recommendations (Testa et al., 2022; Van Riel et al., 2023). Additionally, individuals high in NS tend to show reduced adherence and weaker responses to treatments requiring sustained regulation. For instance, Akase et al. (2020) found smaller improvements following an eight-week mindfulness program among individuals higher in NS. In line with this idea, Ewing et al. (2009) reported that NS moderated responses to brief alcohol interventions. Participants received either a single-session Motivational Enhancement Therapy (MET) intervention or an Alcohol Education (AE) session. MET aimed to promote drinking reduction through reflective discussion and personalised feedback, whereas AE was a largely didactic, non-interactive session focused on providing information about alcohol and relevant policies. In this study, higher NS was associated with no significant improvement following MET, whereas lower NS showed greater improvement. Surprisingly, the pattern reversed for AE, where higher NS showed greater improvement than lower NS. Taken together, evidence linking higher NS to poorer therapeutic outcomes, broader psychiatric vulnerability, and reduced treatment response provides a rationale to hypothesize that:

H2: Novelty Seeking moderates the effect of the Health Episodic Future Thinking intervention such that higher Novelty Seeking attenuates its effects on reducing (a) the likelihood of eating initiation and (b) calorie intake.

Method

Participants

Participants were recruited from the student population of the University of Groningen through the SONA system. The final sample consisted of 158 participants (80.4% female) with ages ranging from 18 to 29 (M = 19.67, SD = 2.13). Participants could complete the questionnaire in Dutch, German, or English. Of all participants, 97 (61.4%) completed the questionnaire in Dutch, 4 (2.5%) in German, and 57 (36.1%) in English.

Procedure

This study was approved by the Ethics Committee of Psychology of the University of Groningen (UG-2425-GMW-S-000106). The questionnaires were administered through Qualtrics (Provo, UT) on computers provided by the University of Groningen. All participants provided informed consent prior to participation. The study was conducted in two periods: from 17-11-2025 to 19-12-2025 and from 12-01-2026 to 30-01-2026. Participants were instructed to eat within two hours before the start of the experiment. This was done to ensure that the eating behaviour observed during the study reflected impulsive eating behaviours rather than responses to acute hunger.

Upon arrival at the laboratory, participants received the information sheet and informed consent form and were guided to an individual cubicle with a computer. After reading the information sheet and informed consent form, participants signed and returned the informed consent to the research assistant. Then, the research assistant opened Qualtrics,

entered the participant ID, and participants started the questionnaire. Through Qualtrics, participants were randomly assigned to either the control or the H-EFT condition.

In the H-EFT condition, participants first listed two future events at the 1-month and 6-month time points. Next, participants in both conditions reported their long-term health goal. Participants in the control condition skipped the future-event questions and proceeded directly to the health-goal question. Next, participants in both conditions completed questionnaires (e.g., descriptive questionnaires). Then, all participants completed an imagery practice task to familiarize them with the imagery task. After this, participants completed either the control or H-EFT task. Both conditions completed two 5-minute tasks that were similar in duration and cognitive demand. After each imagery task, participants in both conditions completed a brief questionnaire assessing various aspects of their imagery experience. After these exercises, participants completed a questionnaire assessing their level of delay discounting. This part of the study took approximately 45 minutes.

After finishing the first part, the research assistant asked participants briefly how it went while walking them to a different room for the second part of the study. Upon entering the room, participants were informed that the study might take longer than they were used to and that optional snacks and a drink were available if they wished. This cover story was used to disguise that the snacks were provided to measure eating behaviour. The snacks consisted of a bowl of M&Ms and a bowl of potato crisps. The drink consisted of one bottle of water. During the second part of the experiment, participants completed a bogus attention task while being able to freely eat from the provided snacks. The second part took 25 minutes; the researcher was not present in the room during this part of the study. Participants were instructed to remain in the room even if they finished earlier. Puzzle books were provided to occupy them if they finished the personality questionnaire and attention task early. The attention task involved memorising details from a short video. Participants watched a video

showing several landscapes in the Netherlands and then answered questions about specific details (e.g., “How many airplanes were shown in the clip?”). Following the attention task, participants completed a personality questionnaire, the TPQ.

After the 25-minute period, the researcher returned to the room. Participants then completed an additional questionnaire through Qualtrics (Provo, UT). Participants were asked about the perceived aim of the study, how much they enjoyed the M&Ms and crisps, and whether they had any further comments. The researcher remained present during this questionnaire. Next, their height and weight were measured using a measuring tape attached to the wall and a digital scale to calculate BMI.

Materials

Manipulation

Participants in the H-EFT condition were first asked to list two future events that will highly likely happen, one event in one month and one event in six months. Next, they listed a long-term health goal and wrote down at least three concrete steps they can take to reach that goal. Participants were then instructed to imagine themselves vividly at the future events of 1-month and 6-months while having made concrete progress toward their personal health goal.

Control task

Participants in the control condition had to do an imagery task similar in cognitive demand and duration to copy the things they had to do in the manipulation. In the first task, they imagined their usual route from their home to the faculty. In the second task, they imagined their route from their home to campus. These tasks did not involve future events or health-goal content.

Practice task

All participants completed two imagery practice tasks before either the control- or H-EFT exercise, to familiarize participants with the imaginary task. In this task, the participants were first invited to imagine the texture, smell, and feeling of a lemon. Second, the participants imagined themselves cutting the lemon and describing the sensory experiences involved (e.g., smell, touch).

After every imagery task, participants completed a brief questionnaire assessing various aspects of their imagery experience, such as "How vivid was this image?" and "How difficult was it to bring this image to mind?"

Novelty seeking

Novelty seeking was assessed with the Tridimensional Personality Questionnaire (Cloninger, 1987). The Novelty Seeking subscale consists of 34 true–false items (e.g., "I get bored easily"). Responses were coded 0 for false and 1 for true, and negatively worded items were reverse-coded so that higher scores reflected higher NS. The total score was calculated by summing the item scores across the 34 items. Higher scores indicate a greater tendency to seek novel stimuli, whereas lower scores reflect a smaller tendency. Cronbach's alpha was 0.71, indicating acceptable internal reliability.

Food intake

In line with Ackermans et al. (2023), two food intake measures were used: eating initiation (i.e. whether an individual began to eat) and the number of calories that were consumed. Participants received bowls of M&Ms (±150 g; 481 kcal/100 g), a bowl of potato crisps (±50 g; 512 kcal/100 g), and a bottle of water. The difference in weight was used to calculate the total amount of calories. The consumed grams of chips and M&Ms were

converted into kcal, and the sum of the kcal consumed in chips and in M&Ms was added for a total measure of calorie intake. If the difference in weight was less than 2 g, it was not possible to determine with certainty whether the participant had begun eating due to measurement error of the food scale. Eating initiation was coded as yes when the weight of either the M&Ms or the crisps decreased by at least 2 g. If the decrease was 0 g or 1 g, eating initiation was coded as no.

Body Mass Index

To calculate the Body Mass Index, the height and weight of each participant was measured (BMI; kg/m2).

Data Analyses

Before the analyses were conducted, the dataset was screened for statistical outliers and careless responding. Following Dassen et al. (2015), outliers on calorie intake were identified using standardized residuals; cases with an absolute standardized residual greater than 3 were removed.

An a priori power analysis was conducted using G*Power (version 3.1.9.7) assuming $\alpha = .05$ and power = .80. For the effect of H-EFT on eating initiation, a medium effect size of w = 0.30 was assumed with df = 1. For the effect of H-EFT on calorie intake, a medium effect size ($d = 0.50$) was used. The moderation tests for H2 were powered with a multiple regression approach assuming an interaction effect of $f^2 = 0.067$. The strictest criterion, based on the multiple regression approach, was applied to determine the final target. The required sample size across analyses was estimated at 120 participants.

The data were analysed using IBM SPSS Statistics (version 28). Condition (H-EFT vs control) served as the independent variable and eating initiation as the dependent variable. Differences in eating initiation between conditions were tested using a chi-square test.

To assess whether calorie intake differed between conditions, an independent sample *t*-test was used. To analyse the moderating role of NS on eating initiation, a logistic regression analysis was conducted. Because the normality assumption was violated, calorie intake was log(x)-transformed prior to analysis. The model included the main effects of condition and NS, as well as their interaction term, with the interaction indicating whether NS moderates the effect of H-EFT on eating initiation. The control condition was coded as 0, while the H-EFT condition was coded as 1. To examine the moderating role of NS on calorie intake, a multiple regression analysis was conducted. This model included the same predictors (condition, NS, and their interaction term), but the dichotomous eating initiation variable was replaced with the continuous measure of calorie intake. Again, the interaction term between NS and condition was used to assess whether NS moderated the effect of H-EFT on calorie intake.

Results

Participants had a mean BMI of 22.92 (*SD* = 3.41) and a mean NS score was 15.29 (*SD* = 4.82). Of the total 158 participants, 85 (53.8%) ate during the experiment and 73 (46.2%) did not eat any M&M's or crisps. Of those who began eating, an average of 171 kcal (*SD* = 154.09) was consumed. Participants were assigned to the H-EFT condition (n = 81) or the control condition (n = 77).

This analysis therefore reflects differences in calorie intake among those who initiated eating, rather than differences in overall calorie intake across all participants. Assumption checks were therefore performed on this subsample. No major violations were detected,

except for the normality assumption on calorie intake. It was positively skewed, so intake was transformed using a log(x) transformation.

Table 1

Descriptive statistics by condition

	H-EFT condition (*n*=81)			**Control condition (*n*=77)**		
	n (%)	M	SD	n (%)	M	SD
Eating initiation	49 (60.5%)	-	-	36 (46.8%)	-	-
Calories from M&M's (kcal)	49 (60.5%)	104.24	97.71	36 (46.8%)	130.67	134.82
Calories from crisps (kcal)	49 (60.5%)	56.32	77.31	36 (46.8%)	54.04	68.60
Total calories (kcal)	49 (60.5%)	160.56	141.27	36 (46.8%)	184.71	171.10
Novelty Seeking	81	15.85	4.86	77	14.70	4.74

Note. Calorie intake variables are reported only for participants who initiated eating

Effects of H-EFT on eating behaviour

First, it was hypothesized that there would be a reduction in eating initiation and calorie intake between conditions. To examine the effect of the H-EFT intervention on eating initiation, a chi-square test was conducted. The analysis showed no significant difference in eating initiation between the control and intervention groups, $\chi^2(1) = 3.00$, $p = .083$. Therefore, there was no significant reduction in eating initiation between conditions.

To analyse differences in calorie intake between conditions, an independent samples *t*-test was performed. The results indicated that there was no significant difference in calorie intake between the control and intervention conditions, $t(83) = 1.09$, $p = .278$. Therefore, there was no significant reduction in calorie intake between conditions.

Novelty Seeking moderation effects

It was hypothesized that NS might moderate the effectiveness of the intervention on eating behaviour, such that higher levels of NS would be associated with less favourable outcomes in eating initiation and calorie intake.

To examine the moderating role of NS on eating initiation, a logistic regression analysis was conducted. The interaction term tested whether NS moderated the effect of the H-EFT intervention on eating initiation. The analysis showed the model was not significant, $\chi^2(3) = 3.62$, $p = .306$. Neither the main effect of NS ($b = 0.01$, $p = .875$, $OR = 1.01$), the main effect of condition ($b = -0.54$, $p = .094$, $OR = 0.58$), nor the interaction between condition and NS ($b = -0.04$, $p = .518$, $OR = 0.96$) significantly predicted eating initiation (see Appendix B, Table 4).

Finally, to examine the moderating effect of NS on calorie intake, a multiple regression analysis was conducted. Similar to the previous model, this analysis included the main effects of condition and NS, as well as their interaction term. In this model, eating initiation was replaced by total calorie intake as the dependent variable. The overall model was not significant, $F(3, 81) = 1.26$, $p = .293$. Neither condition ($b = -0.34$, $p = .181$), NS ($b = 0.05$, $p = .307$), nor their interaction ($b = -0.003$, $\beta = -0.009$, $p = .960$) predicted calorie intake (see Appendix B, Table 5)

Discussion

This study examined the effect of a H-EFT intervention on eating initiation and subsequent calorie intake in a laboratory setting. In addition, the moderating role of NS was examined in the efficacy of the H-EFT. The results indicated that H-EFT did not reduce eating initiation or calorie intake more than the control condition. Furthermore, NS did not impact the efficacy of the intervention on either eating initiation or calorie intake.

It was hypothesised that the intervention would reduce the likelihood of eating initiation and decrease calorie intake between the H-EFT and control condition. These results contrast with previous research indicating that EFT is associated with healthier behaviours, such as reduced energy intake and less impulsive eating (Colton et al., 2024; Ding et al.,

2023). It is important to note, however, that these meta-analyses focused on calorie intake rather than eating initiation.

There are several points to consider when interpreting the null findings. One important possibility is that H-EFT had negligible to no impact on eating behaviour in the present setting. Alternatively, an effect may have been present but too small to detect reliably with the current design. It is crucial to note that the a priori power analysis assumed a moderate effect size. This assumption was informed by comparable single-session EFT studies. Dassen et al. (2015) reported a moderate effect size on calorie intake when the manipulation was explicitly future-oriented and food-specific. In addition, O'Neill et al. (2015) observed a moderate to strong reduction in intake in their single-session health-related EFT. Taken together, these findings are consistent with the assumption of a moderate effect size. Consequently, if the true effect of H-EFT in the present study was smaller than the effect size assumed in the power analysis, it may not have been detected reliably given the present design and sample size. In this case, characteristics of the sample and/or the intervention design may have attenuated the true effect, further reducing the likelihood of detecting an effect under the present conditions.

The present sample differs from those typically studied in EFT research using long-term health goals as part of the cue content. The methodology of the current study was similar to that of O'Neill et al. (2015) in that participants were free to choose both their future events and a long-term health goal. However, the sample and setting differed markedly. In O'Neill et al., the sample consisted only of women with overweight or obesity, and participants were eligible only if they indicated that they wanted to improve their eating habits. As a result, that sample was likely more motivated to change eating behaviour specifically, which may have increased the likelihood of observing an effect compared with

the present study, where participants were not necessarily motivated to reduce snacking or change eating behaviour.

A second factor concerns the extent to which participants' selected health goals were specific to eating behaviour. Prior research suggests that EFT effects on a targeted behaviour may be more likely to emerge when EFT cues are explicitly linked to the measured behaviour (Dassen et al., 2015; Scholten et al., 2019). In the present study, eating behaviour was the only outcome measure, while some participants selected health goals that were not related to eating healthier or reducing impulsive eating (e.g., running). This was revealed in a post-hoc check of the contents of the long-term health goals. Consequently, it may be that some intervention effects were not captured by the eating measures used here. Alternatively, participants whose long-term health goal was not food-related may have been less able to apply the H-EFT cues to eating situations, which may have attenuated the overall effect and reduced the likelihood of detecting an effect in the present sample. This is in line with Dassen et al. (2015), who observed significant effects only when the EFT cues were explicitly food specific. The present study used a comparable sample, as participants were students, relatively young, and not selected based on weight status or health motivation. This contrasts with two other single-session EFT interventions reporting significant reductions in intake that were included in Ding et al. (2023). In both studies, samples consisted of participants who were overweight or obese, and eligibility was restricted to those who expressed a desire to control their weight (O'Neill et al. 2015; Daniel et al., 2013).

Although prior research supports the effectiveness of EFT, the present findings did not provide evidence for an effect in the current study. EFT interventions that embed long-term health goals within cue content have typically been studied in overweight or obese populations. The present sample differed from this, which may have reduced the efficacy of the manipulation. In addition, the extent to which participants selected health goals that were

specific to eating behaviour may also have affected the effectiveness of H-EFT. This interpretation is consistent with evidence that measurable EFT effects can vary across study conditions and may not be observed under all outcome operationalisations (Ding et al., 2023).

Furthermore, this study examined NS as a potential moderator of the effects of the H-EFT intervention on eating initiation and subsequent calorie intake. The results did not indicate that NS moderated the effects of the intervention on either measure of eating behaviour. While NS has been examined as a moderator in other research contexts (Akase et al., 2020; Ewing et al., 2009), it has yet to be examined in the context of EFT interventions. In these articles, it was suggested that potential moderating effects of NS may stem from a greater tendency toward boredom or reduced immersion, which could reduce the likelihood of intervention effects. In the present study, the absence of moderation may indicate that NS had negligible moderating impact in this setting, or that any moderating effect was too small to detect reliably given the current design and sample size.

Limitations

Several limitations should be considered when interpreting the null findings. Characteristics of the sample and procedure may have reduced sensitivity to detect differences between conditions. First, the rate of eating initiation could have compromised the ability to detect an effect of H-EFT on calorie intake. In our study, 53.8% of participants initiated eating, compared with 78% of satiated participants in a comparable laboratory paradigm reported by Ackermans et al. (2023). Because calorie intake can only be assessed among participants who initiated eating, the lower initiation rate may have reduced the sensitivity to detect differences between conditions.

Furthermore, the sample was homogeneous, consisting predominantly of highly educated psychology students and female participants. This limits the external validity of the

findings. Despite these limitations, the present study also has several strengths. Conducting the study in a laboratory setting allowed eating behaviour to be examined in a controlled environment in which calorie intake could be measured accurately. In addition, measuring eating initiation alongside calorie intake provided a more comprehensive assessment of eating behaviour. This allowed the present study to examine whether the intervention influenced not only how much participants ate, but also whether they engaged in eating behaviour in the first place (cf. Ackermans et al., 2023).

Future research could examine the broader health impacts that an H-EFT intervention may induce. In addition, studies could more clearly identify the conditions under which EFT encourages behavioural change. Furthermore, future work could focus on whether other traits are predictive of outcomes. In the case of NS, more research is needed to determine conclusively whether there is an effect.

Conclusion

This study investigated whether an H-EFT intervention affected eating initiation and subsequent calorie intake in a laboratory setting, and whether NS moderated these effects. In H-EFT, participants generated a health goal and a future event and were instructed to connect the two, aiming to increase the salience of long-term outcomes and thereby reduce delay discounting. No evidence was found that H-EFT reduced eating initiation or intake, nor that NS moderated these effects. Incorporating long-term health goals into EFT cues has previously been examined primarily in overweight or obese samples and or in participants who were highly motivated to change their eating behaviour. The present results suggest that this methodological adaptation does not automatically generalise to a healthy student sample, underlining that EFT outcomes may be context dependent.

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Appendix A

In the making of this paper, AI has been used as a tool to aid in the writing process. If sources were provided by this AI, the contents were read through the library license provided by the Rijksuniversiteit Groningen. In addition, ChatGPT (2026) was used to assist with refining grammar, spelling, and phrasing. All suggestions generated by the AI were critically evaluated and manually implemented where appropriate. At no point were AI tools used to generate original content or interpret research findings independently.

Appendix B

Table 2

Sample characteristics

Baseline characteristics	n	%
Condition		
Control	77	48.7
Intervention	81	51.3
Gender		
Male	31	19.6
Female	127	80.4
Prefer not to say	0	0
Questionnaire language		
Dutch	97	61.4
German	4	2.5
English	57	36.1

Table 3

Descriptive statistics by eating initiation (Yes vs. No)

	Have initiated eating (n=85)		**Have not initiated Eating (n=73)**	
	M	*SD*	*M*	*SD*
Calorie intake	170.80	154.04	-	-
Novelty Seeking	15.52	4.67	15.03	5.01
BMI	22.76	3.26	23.10	3.60

Note. Calorie intake is only applicable to participants who initiated eating

Table 4

Binary logistic regression eating initiation

Model	Variable	B	S.E	Wald	df	Sig.	Exp (B)
1	Constant	.135	.230	.342	1	.559	1.144
	Novelty Seeking	.008	.048	.025	1	.875	1.008
	Intervention	-.544	.325	2.803	1	.094	.581
	Intervention Novelty Seeking * Intervention	-.044	.068	.418	1	.518	.957

Table 5

Linear regression Calorie intake

		Unstandardized coefficients		Standardized coefficients		
Model	Variable	B	S.E	Beta	t	Sig.
1	Constant	4.838	.191		25.364	<.001
	Novelty Seeking	0.045	.044	.184	1.029	.307
	Intervention	-.340	.252	-.149	1.349	.181
	Novelty Seeking * Intervention	-.003	.055	-.009	-.051	.960

Note. Dependent variable: Log(x) transformed total calorie intake