Meat Dissonance: The Effect of Inconsistencies on Behavioural Change Stabilisation

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INCONSISTENCIES AND BEHAVIOURAL CHANGE STABILISATION

Abstract

This study examined whether awareness of inconsistencies between meat consumption and biospheric values accelerates the speed of behavioural change stabilisation. Drawing on cognitive dissonance theory and a consistency-based model of behavioural change, it was hypothesised that participants prompted to reflect on their behaviour would experience greater dissonance. Driving faster behavioural change indicated by more change stabilisation. In a ten-day diary study, 76 omnivorous participants were randomly assigned to either an experimental condition (n = 36), involving daily tracking, plant-based informational content, and added reflection and meal planning prompts, or a control condition (n = 40), which received tracking and information only. Measures included daily meat consumption (in portions), perceived dissonance, and biospheric values. A change stabilisation ratio (CSR) was used to assess behavioural stability. Preregistered analyses did not yield statistically significant differences in behavioural stabilisation or dissonance between groups. However, exploratory analyses suggested trends in the hypothesised direction, with the experimental group showing descriptively greater meat reduction and stabilisation. Individual-level dissonance was negatively associated with meat consumption, supporting the general dissonance mechanism. Participants with lower prior knowledge of meat's environmental impact experienced a larger effect of the intervention, supporting the effect of belief challenging information in dissonance arousal. Although no conclusive support was found for the effect of awareness of inconsistencies on the speed of behavioural change stabilisation, directionally consistent differences could suggest support for the hypothesized

mechanism. Future studies with larger samples and extended durations are needed to clarify the temporal dynamics of behavioural stabilisation.

Meat Dissonance: The Effect of Inconsistencies on Behavioural Change Stabilisation

The environmental consequences of human activity are becoming increasingly dire, with climate change, biodiversity loss, and unsustainable resource use presenting global challenges of unprecedented, yet ever-increasing scale. The agricultural sector, and particularly the production of animal-based foods, is a major contributor to greenhouse gas emissions, deforestation, and animal suffering (World Resources Institute, 2023). In light of these challenges, individual changes in lifestyle are not only relevant but necessary to complement systemic transitions. The UK's Climate Change Committee estimates that changes in individual behaviour account for a third of the necessary emission reductions (Climate Change Committee, 2020). Understanding the drivers and processes of such behavioural change is essential to creating effective interventions that can shift societal patterns towards more sustainable norms.

Yet, traditional behavioural change research often emphasizes whether people adopt new practices ("if"), rather than how behaviours evolve over time or maintain at target levels ("how" and "how fast") (Heino et al., 2021). Interventions may spark initial uptake but fail to produce lasting habits, undermining long term impact. For example, meat-free days lower dietary impact, but can cause small rebound effects (3.5%) in meat consumption the following days (Russo et al., 2025). Understanding how and how fast behaviour stabilises after change can help tailor interventions to achieve behavioural marks.

One of the most impactful actions to cut individual emissions is to reduce meat consumption. Going from a 100 grams of meat per day to eating plant-based cuts an individual's yearly carbon footprint by up to 2.2 tonnes CO2, about seven times the reduction of efficient household recycling and roughly 20% of the European yearly average of 10.7 tonnes CO2 per capita (Perkins, 2017; Eurostat, 2025). Despite awareness of the impact of meat consumption,

many people reporting concern about the state of environmental degradation have yet to fully adopt a plant-based diet (Culliford & Bradbury, 2011).

However, unlike waste sorting—which requires minimal time or effort—reducing meat intake involves social tension, taste adaptation, and changing meal routines. These complexities foster perceived behavioural difficulty, causing many individuals to avoid reflecting on the environmental consequences of their diet, reducing the chance of awareness of inconsistencies (Gifford, 2011). Yet, it is precisely this awareness that triggers cognitive dissonance, the motivational mechanism under study of one of the most influential theories in social psychology (Harmon-Jones, 2019).

Cognitive dissonance is the uncomfortable feeling that arises when two or more cognitions are (perceived to be) incompatible - such as caring about the environment (value), yet eating meat (behaviour) - and motivates individuals to resolve the inconsistency by changing their behaviour, justifying it, or adjusting attitudes (1957). Critically, dissonance only arises when inconsistencies are both salient (actively brought to mind) and self relevant (linked to core values) (Gawronski & Brannon, 2019). In addition, higher levels of self-relevance increase both inconsistency salience (Van der Werff et al., 2014), and the amount of dissonance aroused by the inconsistency (Rothgerber, 2020). Combining influences in both directions, dissonance becomes a function of all the motivating inconsistencies and inhibiting factors (e.g. perceived difficulty, justifications, environmental restraints), weighed by their relative importance.

Using the principles of inconsistencies and dissonance, Muinos and Steg aimed to fill the gap in behavioural literature by modeling the speed of change stabilisation over time in response to inconsistencies between people's values, identity, behaviour, and their environment (2024). Stabilisation is the point at which no further change occurs. This does not necessarily mean that

the inconsistency is fully resolved. Any inconsistency between a cognition about a behaviour and the relevant attitudes and beliefs motivates a change to resolve that inconsistency. As behaviour begins to shift to reduce the inconsistency, the motivational force diminishes over time. When the costs of further change (e.g., effort, sacrifice, or social resistance) exceed the motivation, behavioural stabilization occurs (Muinos and Steg, 2024). At this point, the residual dissonance may instead be managed through alternative strategies such as justification or belief change (Rothgerber, 2020). How fast this stabilisation occurs, essentially how fast someone has changed, differs per person and context, based on the strength of the push and pull of motivators and inhibitors (Muinos and Steg, 2024).

Although Festinger's original work was primarily theoretical, subsequent research has provided support for the notion of rapid resolution in the face of high dissonance. For instance, neuroimaging studies have shown that stronger dissonance-inducing stimuli elicit greater activation in brain areas associated with conflict detection (e.g., the anterior cingulate cortex), which correlates with larger attitude change (van Veen et al., 2009). Although not specifically speed of change stabilisation, larger change can be reasoned to approach the point of stabilisation faster within the 10-day window of the study, as the behavioural inconsistency decreases by larger change instances.

To study the effects of awareness of inconsistencies on the speed of behavioural change stabilisation, the current study aimed to set the stage for dietary change by lowering perceived behavioural difficulty through plant-based information provision, and increasing dietary awareness through meal tracking. A meal planning and reflection prompt was meant to further increase awareness of inconsistencies in the experimental group. This leads to the central research question: "To what extent does awareness of inconsistencies between meat consumption

and biospheric values accelerate the speed of behavioural change stabilisation?" Based on this research question, three hypotheses were formulated:

First, it was hypothesised that greater awareness of inconsistencies between behaviour and biospheric values would be positively associated with the speed of behavioural change stabilisation. Second, it was expected that this relationship would be moderated by the level of perceived dissonance, such that higher dissonance would strengthen the association.

Then, to study its effect on the amount of dissonance aroused by the inconsistency, self-relevance of sustainability-related inconsistencies could be gauged with either biospheric values - how much someone values the well-being of the natural environment - or environmental-self identity (ESI) - how environmentally friendly someone perceives themselves to be (Van der Werff et al., 2013). Both biospheric values and ESI are positively related to willingness and intention to perform green behaviour, and the effect of biospheric values was found to be fully mediated by ESI (Van der Werff, Steg, & Keizer, 2013). However, as ESI is partly based on past behaviour, participants with strong ESI are more likely to behave sustainably, which decreases the chance of inconsistencies. In contrast, biospheric values represent motivational relevance without being confounded by past behavioural consistency. Someone with strong biospheric values but weaker ESI likely behaves inconsistently with their values - creating greater opportunity for dissonance. As such, for the present study, focusing on biospheric values may offer more instances of inconsistency to analyse. Thus, thirdly, it was hypothesised that awareness of inconsistencies would elicit greater perceived dissonance among participants with stronger biospheric values.

The current thesis aims to take a first step in increasing understanding of the change process, specifically by studying the effect of awareness of inconsistencies on the speed of

behavioural change stabilisation. Results will be used to make suggestions for further research, so that we may learn to promote behavioural stabilisation in favor of the required sustainable transition.

Method

Participants

A total of 76 participants were recruited through convenience sampling. The expected effect size was set at Cohen's $d = 0.6$, corresponding to a large effect, based on the assumption that repeated exposure to self-reflection and meal planning over multiple days would meaningfully amplify behavioural awareness and change. At $\alpha = .05$, with 80% power, the required sample size was 72. Participants were randomly assigned to either the control group ($n = 40$) or the experimental group ($n = 36$). To participate, individuals had to be at least 18 years old, and were required to eat meat. Upon completion of the ten-day study, participants received €30 as compensation for their time. Participation was voluntary, and all participants provided informed consent before beginning.

Design and Procedure

This study employed a ten-day longitudinal design to track participants' dietary behaviour. Only meat consumption was of interest for the present study; the other food categories were added as distractor items to avoid demand characteristics. On each day, participants completed a brief online questionnaire via Qualtrics. The questions for each day were only accessible on the corresponding calendar date to ensure participants reported their diet day by day, instead of rushing through it and fabricating data. If participants missed a day, they could not complete it later, and previous entries were not visible or accessible at a later point in time.

On each day, including the first and last, participants reported their diet by indicating how many portions per food category they ate in the last 24 hours. They were also asked whether this was a typical day's intake, and asked why if it was not. Only for the experimental group, participants were asked what type of meal they planned to eat the next day (vegan, vegetarian, omnivore), considering their dietary report of the last 24 hours. The daily sessions further consisted of some motivational information (general information about plant-based foods and their benefits, an inspirational text about the plant-based experience of others, or a plant-based recipe), and a shortened version of the dissonance thermometer. In addition to the daily tracking session, day 1 included introductory information, as well as the questionnaires for ESI, value orientation, awareness of the carbon footprint of different diets (vegan, vegetarian, omnivore), and the long version of the dissonance thermometer. Likewise, day 10 also included the long version of the dissonance thermometer, had participants reflect on whether they changed their diet during the experiment (and, if yes, why), and ended with general demographics and some questions concerning their general food context (gender, education, employment status, household composition, dietary habits of roommates, prevalence of eating out / ordering food, prevalence of home-cooked meals, and who cooks the meals).

Materials and Measures

Biospheric Values

Biospheric values were assessed using the four items from the Environmental-Schwartz Value Survey (E-SVS) that represent the biospheric cluster (Steg et al., 2014). It consists of two items from the original Schwartz Value Survey (Schwartz, 1992) and two additional items capturing aspects of biospheric values (Stern et al., 1998). Participants rated how important each value was as a guiding principle in their life on a 9-point scale, including 'opposed to my

values', and ranging from 'not important' to 'extremely important'. Items included "Preventing pollution: protecting natural resources," "Protecting the environment: preserving nature," "Respecting the earth: harmony with other species," and "Unity with nature: fitting into nature." Cronbach's alpha was .84 (M = 5.49, SD = 1.17). The rest of the E-SVS was administered, but only biospheric values were analysed in the current study.

Carbon Footprint of Diets

To estimate awareness of the environmental impact of meat consumption, participants were asked to guess the average daily emissions in kilograms of CO2 for vegan, vegetarian, and omnivore meals with the question "One of the arguments for considering diet change is the environmental impact of different eating patterns. If you had to guess, what is the average daily impact per diet in kilograms of CO2? We are interested in you guess. Your answer does not need to be accurate." Answers were recorded using a slider scale ranging from 1 to 7 kilograms of CO2.

Dissonance Thermometer

To measure the subjective discomfort participants experienced in relation to their eating behaviour, a dissonance thermometer was administered throughout the study. On the first and final days of the questionnaire, participants completed the full version (24 items, see Appendix A) of the dissonance thermometer. On all the days in between they filled out a shortened version with just two items: *uncomfortable* and *conflicted*. The shortened version was used based on communication with researchers having previously used the dissonance thermometer (D. Vaidis, personal communication, February 2025). The long version was included to allow comparison of validity between the long and short versions. Answers were recorded using a 7-point scale (1 = *does not*

apply at all, 7 = *applies very much*). To capture any participants using an acquiescence response style, 6 items were positively worded (e.g., *content, happy*), which were reverse-scored before analysis. Cronbach's alpha was .95 for the full scale, and .68-.83 for the two item version on days two till eight (M = 2.37, SD = 0.89).

Meat Consumption

On each day, participants reported how many portions of meat they consumed in the past 24 hours. Answers were recorded using a 5-point scale, ranging from *'none'* to '*more than 3 portions*'. The dietary recall included other food categories, but only portions of meat were analysed in the current study. Other descriptive variables (e.g. change statistics, meat reduction, total meat consumption) were calculated using portions of meat per day.

Change Stabilisation Ratio (CSR)

To assess behavioural stabilization over time, the Change Stabilisation Ratio (CSR) was calculated based on daily meat portion reports. CSR represents the ratio of behavioural variance in the last three days relative to the first three days , where and refer to the standard deviation in meat consumption during the first three days and the last three days. The way of calculating these two variables was using

, (1)

where m is the amount of meat consumed on the d-th day, with difference-scores in meat consumption indicating day-to-day change (e.g., meat portions day 2 - meat portions day 1), resulting in three change scores for day 1 to 4. Similarly, the standard deviation for the last three days was calculated using

, (2)

similarly resulting in three change scores for day 7 to 10. A lower CSR indicates greater stabilization towards the end of the measurement period (with CSR<1 = stabilisation, CSR>1 = destabilisation), because greater stability in the final days leads to smaller fluctuations - and thus a lower standard deviation in the later period, reducing the numerator of the CSR.

Qualitative Feedback

On the final day (day 10), participants were asked an open-ended question: "Do you think you changed your diet in the last ten days? If so, can you share with us in a few words what motivated you to change it?" This question was included to gain exploratory insights into participants' subjective experiences and perceived motivations for change.

Statistical Analyses

To test the effect of inconsistency awareness on CSR, group assignment (reflection vs. control) was used as a proxy for awareness of inconsistency. Participants in the reflection condition were prompted to plan their next meal and reflect back the following day, which aimed to increase the salience of inconsistencies.

To test whether dissonance moderated the effect of inconsistency awareness on CSR, a moderation analysis was conducted using the PROCESS macro (Model 1; Hayes, 2018), with condition/group as the predictor, perceived dissonance as the moderator, and CSR as the outcome. This model tested whether the effect of reflection on speed of behavioural change stabilisation was stronger at higher levels of experienced dissonance.

To test whether biospheric values predicted the degree of perceived dissonance, a linear regression analysis was conducted across groups. A significant positive association would support the hypothesis that awareness of inconsistencies results in higher perceived dissonance among participants scoring higher on biospheric values.

To assess whether the manipulation of awareness of inconsistencies effectively increased dissonance in the experimental group, an exploratory independent samples t-test was conducted.

The analyses were conducted in IBM SPSS Statistics 26. All Likert-scale measures were treated as continuous variables. Assumptions of normality, linearity, and homoscedasticity were assessed prior to conducting regression analyses. Significance thresholds were set at $p < .05$ for all tests.

Results

Assumption Checks

For the independent samples t-tests conducted for hypothesis 1, visual inspection of the Q-Q plots of standardized residuals for CSR showed no severe deviation from normality in either group. Independence of observations is ensured by random group assignment. With an insignificant Levene's test ($p = .59$), results assuming equal variances were reported for the independent samples t-test.

For the moderation analysis using Hayes' PROCESS macro (model 1) conducted for hypothesis 2, visual inspection of the Q-Q plot of standardized residuals showed no severe deviation from normality, and with adequate sample size ($n = 46$) the moderation analyses were robust to minor violations of normality. Visual inspection of the scatter plot of residuals supported assumptions of linearity and homoscedasticity. VIF and tolerance values for all predictors (main effects and interaction) indicated no problematic multicollinearity.

For the simple linear regression conducted for hypothesis 3, visual inspection of the scatter plot of residuals supported assumptions of linearity and homoscedasticity. Visual inspection of the Q-Q plot of standardized residuals showed no severe deviation from normality,

and with adequate sample size (n = 64), the regression was robust to minor violations of normality. Inspection of Cook's distances indicates that there likely were no influential outliers.

For the exploratory independent samples t-test comparing dissonance between groups, visual inspection of Q-Q plots of dissonance scores within each group showed no severe deviation from normality. Independence of observations was ensured by random group assignment. Levene's test for equality of variances was not significant (p = .987), supporting the assumption of homogeneity of variances. Therefore, results assuming equal variances were reported.

Manipulation Check Proxy: Group Differences in Dissonance

With lack of a dedicated manipulation check, the level of aroused dissonance was used as a proxy, as awareness is one of the requirements for arousal of dissonance. An exploratory independent samples t-test was conducted to test group differences in dissonance. The control group (M = 2.43, SD = 0.87) showed slightly higher dissonance than the the reflection group (M = 2.31, SD = 0.93), but this difference was not significant, $t(66) = 0.55$, $p = .587$ (two-tailed), 95% CI [-0.31, 0.59]. The analysis does not support that the reflection manipulation was effective in increasing dissonance above the control group. This suggests that the groups experienced similar levels of awareness of inconsistencies.

Group Differences in CSR

The included reflection prompt in the experimental group aimed to increase reflection on and awareness of inconsistencies. Increased awareness in the group ought then to have led to more instances of dissonance-driven (behaviour) change and consequent stabilisation. To determine whether the experimental group showed more

stabilisation than the control group, an independent samples t-test was conducted. In congruence with the hypothesis, the reflection group (M = 1.00, SD = 0.87) showed slightly more behavioural stabilisation than the control group (M = 1.14, SD = 0.63), but this difference in CSR was not significant, $t(44) = 0.30$, $p = .29$ (one-tailed), 95% CI [-0.31, 0.59]. The analysis does not support that the reflection manipulation was effective in increasing behavioural stabilisation above the control group.

Dissonance as Moderator

The effect of awareness of inconsistencies was hypothesized to depend on the level of dissonance aroused by said awareness. Those low in dissonance might be aware but not very motivated to change, whereas those high in dissonance experience increased motivation. A moderation analysis was conducted using Hayes' PROCESS macro (model 1) to examine whether the effect of awareness of inconsistencies (group) on the rate of stabilisation (CSR) was moderated by dissonance. The model was not significant, $F(3, 42) = 0.16$, $p = .93$, $R^2 = .01$. There was no significant main effect of group (B = -0.13, SE = 0.23, $p = .58$), dissonance (B = 0.05, SE = 0.19, $p = .77$), or their interaction (B = -0.03, SE = 0.25, $p = .90$). These results do not support that dissonance significantly predicts the speed of behavioural change stabilisation, or that this relationship was moderated by group assignment.

Biospheric Values as Self-Relevance

One of the requirements for dissonance arousal is personal relevance. Biospheric values capture the importance someone places on protecting and caring for nature. The relevance of sustainable eating behaviour suggests that higher biospheric values should indicate higher personal relevance of meat-eating-related inconsistencies, leading to more dissonance. A simple

linear regression was conducted to examine whether biospheric values predicted dissonance. The model was not significant, $F(1, 63) = 0.62$, $p = .43$, and explained only 1% of the variance in dissonance ($R^2 = .01$). The analysis does not support that biospheric values predict dissonance, ($B = 0.07$, SE = 0.09, $t = 0.77$, 95% CI [–0.11, 0.25]).

Post Hoc Exploratory Analyses

Additionally, several post hoc exploratory analyses were conducted to better understand patterns emerging in the data. These analyses were not preregistered and should be interpreted with caution. Assumptions for the post hoc exploratory analyses - including independent samples t-tests, Pearson correlations, simple regressions, Hayes' PROCESS Model 1, and GLM repeated measures - were examined and met. Visual inspection of Q-Q plots and residual scatterplots supported normality, linearity, and homoscedasticity where applicable. Levene's tests and Mauchly's test (for sphericity) were non-significant, and no issues with multicollinearity or influential outliers were detected.

Change Pattern across Groups

A post hoc exploratory analysis of the general change process compared descriptives of total change scores in the first, middle and last three days (see Table 1). The analysis showed that total behavioural change increased from the first to the middle three days, and decreased from the middle to the last three days, even below the total change in the first three days. To test the significance of these differences, a general linear model with repeated measures was used, with a within-subjects factor time(3) denoting the three three-day periods.

Although the Shapiro-Wilk test was significant for both difference scores (middle - first, last - middle), visual inspection of the Q-Q plots showed no severe deviation from normality. Given the adequate sample size ($n = 61$) and the robustness of the GLM to minor violations of

normality, a repeated measures general linear model was deemed appropriate (Blanca et al., 2023). The main effect of time was not significant, $F(2, 120) = 0.87$, $p = .422$, partial $\eta^2 = .01$, providing no support for differences in total change across the three time periods. A planned within-subjects contrast testing for a quadratic trend also failed to reach significance, $F(1, 60) = 1.32$, $p = .255$.

Table 1

Descriptive statistics for total absolute change in meat consumption

Group	First days	Middle days	Last days
Sample	1.88	2.04	1.78
Control	1.95	1.94	1.91
Experimental	1.81	2.16	1.61

Note: Mean scores per participant per 3 days. Sample sizes varied slightly across measures due to missing data (range: sample $n = 63$-68, control $n = 35$-37, experimental $n = 28$-32).

Change Pattern within Experimental Group

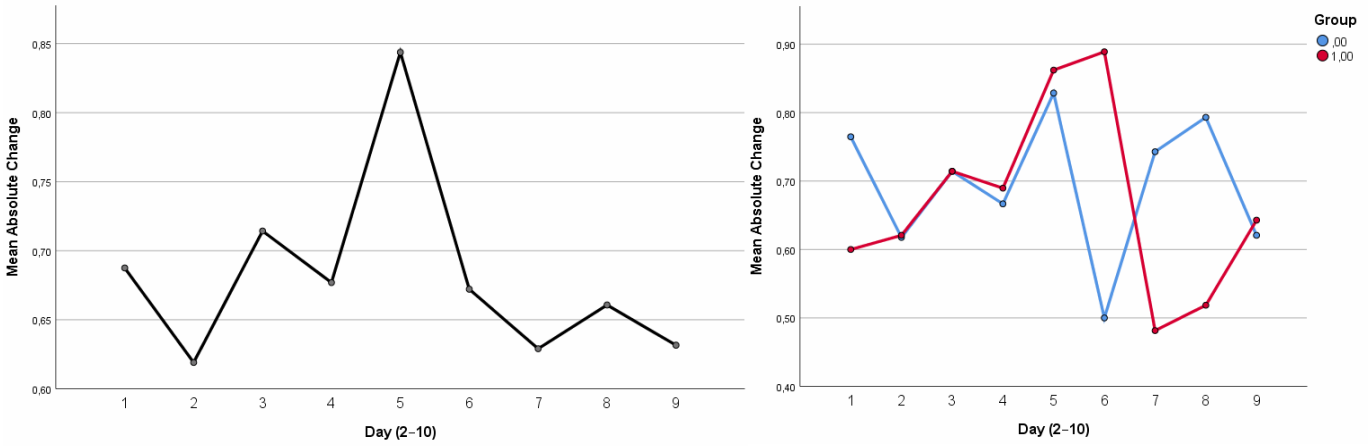
The same repeated measures analysis was run including only the experimental group, as the observed differences between groups in the descriptive statistics of the change scores in the first, middle and last three days (see Table 1) suggest a different change pattern. The main effect of time was not significant, $F(2, 50) = 1.79$, $p = .177$, partial $\eta^2 = .07$, providing no support for differences in total change across the three time periods. A planned within-subjects contrast testing for a quadratic trend approached significance, $F(1, 25) = 3.45$, $p = .075$. This could suggest that a significant difference in change pattern between groups might have been found had the study been adequately powered.

Visual Inspection of Change Patterns per Day

Additional visual expectation of the change pattern per day shows a strong peak in mean absolute change in the whole sample on the fifth day (see Figure 1). Closer inspection of group differences in change pattern shows both groups experience high mean absolute change on day five, with control dropping off into what seem to be change fluctuations, and the experimental condition showing high change for another day before stabilising slightly. The experimental group seems to mimic the peak of the general change pattern more, while the control group shows more consistent fluctuations. However, without more days, it is unclear what pattern of change each group will go through.

Figure 1

Mean absolute change per day in the total sample and by condition



Note: Sample sizes varied slightly across change scores due to missing data (range: across groups n = 56-65, control [group 0] n = 29-36, experimental [group 1] n = 27-30).

Group Difference in Total Meat Reduction

Although the groups showed no significant difference in dissonance, a post hoc exploratory analysis approached significance, $t(64) = 1.69$, $p = .097$ (two-tailed), 95% CI [–0.22, 2.56], suggesting that the experimental group may have shown a greater reduction in meat

consumption than the control group when comparing the first and last five days. Given the short study window, five-day periods were used (instead of three-day periods as with CSR) to reduce the influence of daily fluctuations or outliers in meat consumption.

Table 2

Descriptive statistics total meat portions

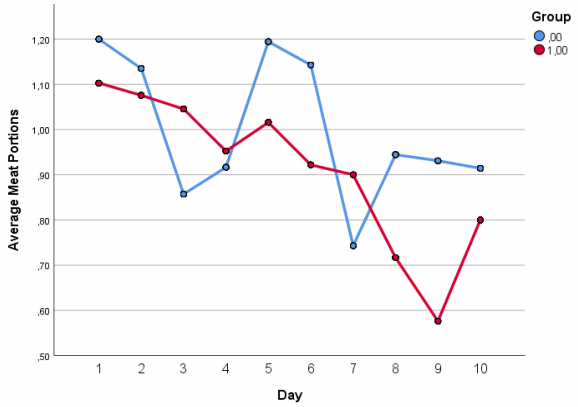
Group	First days	Last days	Change
Control	5.00	4.30	-0.69
Experimental	5.00	3.25	-1.87

Note: Mean scores per participant per five days. Sample sizes varied slightly across measures due to missing data (range: control n = 36-38; experimental n = 30-33).

Visual inspection of group differences in total meat consumption across the 10 days (see Figure 2) further suggests that the experimental group might have experienced a different change pattern, with a more determined downward trend in daily meat consumption, as compared to the fluctuations of the control group.

Figure 2

Meat consumption per day in average portions per condition



Note: Sample sizes varied slightly across days due to missing data (range: control [group 0] n = 29-37, experimental [group 1] n = 27-32).

Correlations of Dissonance and Meat Consumption

Although the experimental manipulation did not produce significant differences in dissonance between groups, post hoc exploratory correlations were conducted to examine whether individual differences in dissonance were associated with either total meat portions across the 10 days, or meat reduction from the first to the last five days.

Correlational analyses were used instead of regression analyses, because a reduction in consumption could help reduce dissonance, yet dissonance could also motivate a reduction in consumption; similarly, the amount of total portions might affect the level of dissonance, and the level of dissonance could affect total portions through motivating consumption reduction.

The correlation between dissonance and total portions (r = -0.04, p = .721) was not significant. The correlation between dissonance and meat reduction (r = -0.23, p = .066) approached significance. This is in line with research showing the effectiveness of the mechanism of dissonance in motivating behavioural change.

Effect of Vegetarian Meal Planning

A post hoc exploratory analysis suggests that meal planning may have had a stronger effect on total meat consumption than dissonance. Specifically, the frequency of vegetarian meal planning was significantly negatively correlated with total meat portions (r = -0.27, p = .018). However, the correlation with meat reduction only was not significant (r = -0.16, p = .196).

Post Hoc Group Differences in CSR

With the above-mentioned results from the post hoc analysis of the general change process suggesting that most change happened in the middle days, the stabilisation part of the

change process as measured by CSR should perhaps be measured starting from the middle instead of the first three days. An additional post hoc exploratory operationalisation of CSR was constructed, comparing the behavioural change stability in the last three days with the middle three days (CSRmid). A post hoc exploratory independent samples t-test was conducted for the analysis of hypothesis 1, with CSRmid as dependent variable. In congruence with the original analysis and the hypothesis, the reflection group (M = 0.77, SD = 0.55) showed more stabilisation than the control group (M = 0.96, SD = 0.70), although this difference also failed to reach significance, $t(44) = 1.05$, $p = .150$ (one-tailed), 95% CI [–0.18, 0.57]. The post hoc exploratory analysis does not provide support for hypothesis 1. The observed group differences were not statistically significant and inconsistent in direction across operationalisations.

Post Hoc Dissonance as Moderator

Similarly, a post hoc exploratory analysis using Hayes' PROCESS macro (model 1) examined whether the effect of dissonance on CSRmid was moderated by group (reflection vs. control). The overall model was not significant ($F(3, 42) = 1.16$, $p = .335$, $R^2 = .08$). There was no significant main effect of group (B = -0.23, SE = 0.19, $p = .220$, 95% CI [–0.61, 0.14]), dissonance (B = -0.23, SE = 0.17, $p = .182$, 95% CI [–0.56, –0.11]), or their interaction (B = 0.12, SE = 0.22, $p = .566$, 95% CI [–0.31, 0.56]).

Post Hoc Biospheric Values as Self-Relevance

Since biospheric values were hypothesized to have a positive relationship with the level of aroused dissonance when participants are aware of their inconsistencies, at least a certain level of dissonance is necessary to show the influence of biospheric values. This led to a post hoc exploratory simple linear regression analysing the effect of biospheric values on dissonance, including only participants with mean dissonance scores above 1.5 (i.e., those who reported at

least some experienced dissonance). This post hoc exploratory did not reach significance (F(1, 49) = 1.84, p = .182, B = 0.11, SE = 0.08, t = 7.55, 95% CI [-0.05, 0.28]). The model explained 4% of the variance (R^2 = .04).

Dissonance as proxy for awareness

While the experimental condition was originally intended to manipulate awareness of inconsistencies, its effectiveness as a proxy may be limited. The control group also received general plant-based information and tracked their diet daily, which may have increased dietary reflection. For this reason, a post hoc exploratory awareness proxy using reported dissonance itself was used, reasoning that awareness is a requirement for dissonance to arise, and any participant who became aware of inconsistencies would experience at least some dissonance (Gawronski and Brannon, 2019).

With a dissonance cut-off point of 1.5, similar to the above post hoc analysis of H3, all participants below 1.5 dissonance were considered unaware, those above were considered aware. Although insignificant (p = .288-.707*)*, independent samples t-tests analysing differences in CSR, CSRmid, meat reduction, total meat portions, and frequency of vegetarian meal planning, all showed effects in the same direction, with higher levels of dissonance being related to more stabilisation, higher meat reduction, lower total meat portions, and higher frequency of vegetarian planning (see Table 3). Additionally, descriptive measures for participants reporting 'moderate dissonance' (> 3) have been added to the table, together with 'no dissonance' (< 1.5) and 'some dissonance' (> 1.5). Despite the absence of significant effects, an increasing effect can be seen with showing directional consistency with the comparisons based on the 1.5 cut-off, except for increased CSR for moderate dissonance participants.

Table 3

Group differences based on dissonance cut-off points

Variable	No Dissonance *M (SD)*	Some Dissonance *M (SD)*	Moderate Dissonance *M (SD)*
Total meat portions	9.73 (4.37)	8.70 (5.30)	7.62 (5.41)
Meat reduction	-0.53 (2.67)	-1.43 (2.90)	-2.08 (2.78)
Total veg. plans	1.00 (1.69)	1.25 (2.34)	1.31 (2.46)
Biospheric values	3.55 (1.17)	3.44 (1.20)	3.79 (0.93)
CRS	1.24 (0.54)	1.03 (0.80)	1.35 (0.74)
CSRmid	1.23 (0.99)	0.80 (0.53)	0.72 (0.51)

Note: Sample sizes varied across measures due to missing data (CSR n = 10/36/9, CSRmid n = 7/39/10, other variables: No Dissonance n = *14-15*, Some Dissonance n = 51-53, Moderate Dissonance n = 12-13).

Effect of Day 1 Awareness of Meat Impact

One part of stimulating awareness of inconsistencies was the reduction of perceived behavioural difficulty by providing information on plant-based benefits, ease and taste. As the effect of information provision most likely depends on prior knowledge, a series of post hoc independent samples t-tests was run with a grouping variable based on whether participants accurately guessed the proportional impact of vegan, vegetarian and omnivore meals. Those correctly guessing the order of vegan, vegetarian, and omnivore meal impact, as well as estimating the omnivore meal to contribute 3 kg of CO2 more than a vegetarian meal, were considered informed (n = 48). All other participants were considered misinformed (n = 28). Although only dissonance showed a significant difference (p = .034, equal variances not

assumed, Levene's $p = .001$), all other differences were directionally consistent with a stronger effect for those participants who were misinformed.

Table 4

Comparisons between groups based on correctness of prior knowledge

Variable	Misinformed *M (SD)*	Informed *M (SD)*
Meat reduction	-1.70 (2.77)	-1.02 (2.89)
Total veg. plans	0.64 (1.77)	1.31 (2.28)
Total meat portions	7.00 (5.15)	9.08 (5.25)
Dissonance	2.78 (1.16)	2.18 (0.67)
Biospheric values	3.34 (1.08)	3.55 (1.22)
CSR	0.81 (0.75)	1.18 (0.74)
CSRmid	0.66 (0.56)	0.96 (0.65)

Note: Sample sizes varied across measures due to missing data (CSR $n = 20/46$, CSRmid $n = 16/30$, other variables: misinformed $n = 20$-28, informed $n = 46$-48).

Post Hoc Calculations of Sample Size and Achieved Power

As the effects of the preregistered analyses, as well as other post hoc analyses, were directionally consistent with the hypotheses, a post hoc power analysis was performed to estimate the actual required sample size for the found effect sizes. Choosing the core hypothesis of this thesis - whether the experimental condition would exhibit faster behavioural stabilization due to increased awareness of inconsistencies - Cohen's d was calculated for the observed group difference in CSR ($d = –0.18$, a small effect). An a priori power analysis using G*Power indicated that detecting this effect with 80% power at $\alpha = .05$ would require approximately 758 participants. The actual sample size ($n = 44$ after calculating CSR) was therefore insufficient to

reliably detect small effects. A post hoc power analysis indicated that the available sample size (N = 76) would only detect effects of $d \geq .2$ with 20% power, limiting the strength of conclusions drawn from this analysis.

An alternative operationalisation, CSRmid, may better reflect the observed change pattern, which showed increased fluctuations during the middle days of the study. This post hoc measure yielded a larger effect size (d = –0.31), indicating that approximately 260 participants would be required to detect such an effect with 80% power at α = .05. Although CSRmid was not preregistered, its stronger effect suggests that behavioural change may require a few days to initiate, and that stabilization measures capturing this starting point may be more sensitive to detecting change processes in future research.

Discussion

This study aimed to investigate whether awareness of inconsistencies between meat consumption and sustainable self-relevant values would accelerate behavioural change stabilization after dietary change. Drawing on cognitive dissonance theory and the consistency-based model of change (Muinos & Steg, 2025), it was hypothesized that participants prompted to reflect on their dietary behaviour would experience greater dissonance and, consequently, faster behavioural stabilization. However, none of the preregistered analyses reached statistical significance, providing no conclusive support for these hypothesized effects.

Though group differences in CSR and CSRmid did not reach statistical significance, observed odds ratios for stabilization (1.88 [0.52–6.81] and 1.3 [0.31–5.39], respectively) suggest a possible trend towards greater stabilization in the experimental group. However, the wide confidence intervals including ratios < 1 reflect uncertainty around these estimates.

Given the limited sample size and the absence of significant support for the hypothesised effects, the majority of the results and discussion is based on post hoc exploratory analyses. As such, (approaching) significant effects should be interpreted with caution and cannot be considered confirmatory evidence, but may serve as a starting point for future hypothesis-driven research.

Awareness in both Conditions

With lack of a dedicated manipulation check for awareness of inconsistencies, the absence of group difference in aroused dissonance suggests that the manipulation was not effective in increasing awareness in the experimental group above that of the control group. However, by using aroused dissonance as a manipulation check proxy, the similar levels across groups seems to suggest that both experienced at least some level of awareness.

As both groups tracked their diet and received plant-based information, they both likely experienced increased dietary consciousness and lowered perceived behavioural difficulty, facilitating active reflection on and awareness of any inconsistencies present. The only difference was the meal planning and reflection prompt included in the experimental condition.

In that sense, the control group was also not truly a control, but more of a placebo group. This would explain the absence of group differences in dissonance. The similar levels of awareness in both groups, implied by dissonance as proxy, effectively disrupt 'group' as the original proxy for awareness of inconsistencies, and the absence of significant group differences is no longer related to the effectiveness of awareness.

Different Change Pattern for Experimental Condition

However, when looking at visually descriptive graphs of the change pattern per group, a difference emerged. A quadratic pattern with increased change in the middle days, followed by

slight stabilisation in the last days, was seen in a graph of the general change pattern across groups (see Figure 1). Inspection of a graph comparing the change pattern between groups showed slight variation in their change patterns, which is difficult to interpret because of the limited duration of the study. Additional days could show the experimental group following the fluctuations of the control group, or perhaps show faster stabilisation as suggested by the longer change peak and stabilisation dips for the experimental group. Analyses with repeated measures support the latter, with a quadratic effect of time approaching significance within the experimental group, and absence of a significant effect in the control group.

Effect of Meal Planning?

As dissonance theory states that behavioural change resolves dissonance, commitment to value consistent behaviour, such as planning to eat vegetarian the next day, might help mentally align actions with values, similarly reducing dissonance. Hypocrisy-based dissonance interventions that involve planning or commitment statements have shown effectiveness in health behaviours (e.g., Freijy & Kothe, 2013), and implementation intentions have long been found to promote action consistent with values (Gollwitzer, 1999). While none directly test the dissonance-reduction effect of planning alone, these findings support the plausibility of the mechanism. In line with the observed group difference in change pattern and a potential effect of meal planning, the experimental group showed a larger, and steadier reduction in total meat consumption, compared to the fluctuations of the control group (see Figure 2).

Planning not Related to Meat Reduction

However, although vegetarian meal planning was related to total meat consumption, it alone was not predictive of meat reduction across time. Participants may have adopted vegetarian planning immediately and successfully, which - due to the

lack of a separate baseline phase - may have masked the extent of behavioural change, resulting in lower apparent reduction across time. To avoid ambiguous results, future research should opt for a manipulation of awareness of inconsistencies not confounded with mechanisms such as meal planning that potentially have their own effect. A meal planning only condition could be included to isolate the effects. With similar group levels of dissonance and biospheric values, yet absent an effect of meal planning on meat reduction, the larger reduction of meat consumption in the experimental group might be an interaction effect, with the motivational force of dissonance increasing effectiveness of meal planning as change technique.

Effect of Dissonance

Although the experimental manipulation was not effective in increasing dissonance in the experimental group compared to the control group, dissonance showed a negative relationship with meat reduction on an individual level, suggesting that higher dissonance led to greater meat reduction. The general effectiveness of dissonance is further supported by post hoc exploratory analyses using dissonance scores as a proxy for awareness, which revealed meaningful group differences. Participants reporting at least some dissonance tended to consume fewer total meat portions, demonstrated greater overall reduction in meat consumption, planned more vegetarian meals, and showed more behavioural stabilisation by the end of the study, compared to those reporting minimal dissonance.

To further explore this pattern, a higher threshold was used to identify participants experiencing moderate dissonance. These participants again tended to eat less meat, planned more vegetarian meals, and exhibited greater reduction and stabilisation in behaviour compared

to participants scoring below this threshold. The only notable inconsistency in this trend was that participants in the moderate dissonance group appeared to stabilize less when comparing the first and last days of the study. However, when comparing the middle to the last days, they showed the highest degree of stabilisation. This suggests that individuals experiencing higher levels of dissonance may go through a more tumultuous and longer change process, where previous stability has not yet been achieved, but behaviour has stabilised from a change episode in the middle days.

Effect of Prior CO2 Knowledge

The inclusion of the question about carbon footprint per meal type most likely framed the study in a sustainable manner, and descriptive results showed that most participants were informed about the higher impact of omnivore meals (see Table 4), albeit with varying degrees of correctness. Given the informational nature of the study, prior knowledge and its correctness are bound to influence the effect of information provision. Indeed, correct knowledge of the proportional impact of diet types showed directionally consistent differences in each outcome measure, surprisingly however, indicating a stronger effect of experiment across groups for those that wrongly guessed the impact per meal type. This suggests that as the information provided was more novel to them, it challenged their existing beliefs to a greater extent. Belief challenging information exposes fresh meat-related-inconsistencies that arouse more dissonance than previously encountered - and (partly) resolved - inconsistencies. This is in line with the post hoc results showing higher dissonance, as well as directional consistency across measures, in the uninformed participants.

Conversely, those participants priorly aware of the CO2 related impact of meat consumption likely already encountered meat related cognitive dissonance when they learned of

it in the first place. If they already had a chance at resolving the inconsistency to such an extent that stabilisation occurred, they might have been left with tailored justifications that handle the residual dissonance. Although they might still show change due to the nature and invitation of the study - participation implying interest in diet change - their justifications from previous encounters with meat related inconsistencies would likely buffer them against dissonance. Such buffers could hide part of the effect from analysis, as these participants essentially experienced the raw effect upon first gaining awareness. Although this effect has yet to be directly studied, future research could consider preselecting participants based on their prior awareness of the environmental impact of meat consumption. This would help isolate the full dissonance response among individuals who have not yet resolved the inconsistency, allowing for a clearer analysis of its behavioural effects.

Qualitative Feedback

The qualitative responses provided valuable insight into participants' experiences during the study, which resonate with the positive effect of information provision and dietary awareness. While about a third of participants reported actively reducing their meat consumption during the 10 days, many others indicated that the study primarily increased their awareness of their dietary habits. Several participants described a growing motivation to change, often sparked by the recipes or by realizing their own consumption patterns.

However, practical barriers such as busy schedules, travel, and having already purchased groceries were frequently cited as reasons for not changing behaviour immediately. Ethical concerns, particularly around animal suffering and environmental impact, were recurring themes among those who reflected more deeply on their choices.

Interestingly, even some participants who did not change their diets expressed

appreciation for the study, reflecting on the increased awareness and the effect this will have going forward: e.g. "...now I'm more concerned about what I eat, and the impact it has on the environment, and the earth. It may take a bit of time to change everything, but I will change some products for others (that are) healthier for me and for the environment". These findings align with the idea that awareness and intention often precede actual behavioural change, especially when habitual or socially embedded behaviours like eating meat are involved.

Added Value

While the current study focused primarily on short-term behavioural change dynamics, prior research suggests that even brief meat reduction interventions can have sustained effects. For instance, prescribing a vegetarian or flexitarian diet for just one week led to significant reductions in meat consumption that persisted in the following weeks (Dakin et al., 2021). These findings highlight the potential for short interventions - especially those involving active engagement like reflection, planning, or daily tracking - to initiate lasting shifts in consumption. Although our study did not include a long-term follow-up, the observed awareness and intention formation among participants suggest that some behavioural effects may continue beyond the ten-day period. Future studies could incorporate delayed post-tests to explore the durability of change more explicitly.

Limitations

Sample Size and Statistical Power

A key limitation of this study is the modest sample size, which limited statistical power for detecting small to moderate effects. While the study was sufficient to detect large effects, the observed effects - particularly those related to group differences in meat reduction and change stabilisation - were small in magnitude. Although not statistically significant, these small effects

were consistent in direction with theoretical expectations and may indicate meaningful trends that a larger sample could help clarify. Future research on behavioural stabilisation speed should be designed with these effect sizes in mind to ensure sufficient power to detect subtle but potentially important patterns.

Sample Representativeness

Despite absence in significant group differences, the current experiment led to a surprising amount of change for a behaviour that has met so much resistance in change attempts. This can be explained by two things. First, the control group being more of a placebo group likely hides part of the effect of the experimental manipulation. In that sense the current study compared two interventions instead of one versus a control. Second, due to the participants' (indirect) acquaintance with an environmental psychology master student (convenience sampling) and open nature of the study about its goal of dietary change, it is likely that participants were interested in sustainability and dietary change, thus not representing the full range of different meat consumers. Although the findings might provide suggestions for future research, results should not be extrapolated beyond so-called meat reducers, those already more willing to reduce their meat consumption. Future research should distinguish between different types of meat consumers, in order to properly distinguish between the different change patterns they will likely show.

Study Duration

The study duration of 10 days may have been too short to fully capture the behavioural change process in response to dissonance. Shifting dietary habits, especially meat reduction, often requires extended reflection, planning, and adaptation over weeks or months (Reuzé et al., 2023). Meat reduction can be analysed in various stages, with participants in later stages showing

increased reduction of meat consumption over time. During the current study, some participants may have only begun to process the inconsistency, with intentions forming but not yet translating into observable change. Without a separate baseline phase or long-term follow-up, it remains unclear whether observed reductions reflect temporary fluctuations, early-stage change, or lasting shifts in behaviour. Future research should extend the study period and include follow-up measures to more accurately capture the pace and sustainability of behavioural stabilisation.

Scope of Dissonance: Environmental vs. Animal Welfare Concerns

A limitation in the manipulation of dissonance is the focus on environmental concerns, which may not be the most common or affectively charged source of meat-related cognitive dissonance (MRCD) (Rothgerber, 2020). Although the MRCD framework theoretically accommodates sustainability-related inconsistencies, prior research suggests that dissonance is more commonly and intensely experienced in response to animal welfare concerns. For instance, even among environmental science students - who were highly knowledgeable about the environmental impact of meat - animal welfare was cited more often as a morally problematic aspect of meat consumption (Šedová et al., 2016). This suggests that dissonance elicited by environmental concerns may be weaker, less emotionally salient, or less likely to provoke behavioural change, which could have attenuated the effect of the intervention in the current study.

Measurement Limitations of the Dissonance Thermometer

A limitation in measuring dissonance is the lack of a properly conceptualised manner (Vaidis and Bran, 2019). The study used the dissonance thermometer to assess participants' experienced cognitive dissonance. Due to practical constraints and expert feedback regarding the scale's conceptual clarity, the full version of the thermometer was administered only on days 1

and 10, while a shorter, two-item version ("in conflict" and "uncomfortable") was used on days 2 through 8. Although this two-item version aligns more closely with the core experience of dissonance (Vaidis et al., 2024), it offers reduced reliability due to limited item coverage, potentially increasing measurement error. This may have weakened the sensitivity of our day-to-day dissonance assessments, affecting our ability to detect subtle fluctuations or associations with behavioural outcomes.

Timing of Dissonance Measurement

A further limitation in measuring dissonance is the questionnaire order, in which dissonance was measured before participants reflected on their dietary behaviour for the day. As a result, the inconsistency between their behaviour and values may not yet have been salient, meaning that dissonance had not yet been fully triggered at the time of measurement. This may have led to an underestimation of dissonance levels and reduced the sensitivity of related analyses.

Ambiguity in Portion-Based Measurement

A limitation in measuring meat consumption is the lack of specifications about portion sizes. Diet was measured using self-reported portions, which is ambiguous due to individual differences in portion sizes. For example, a participant reporting 200 g of meat as one portion on day 1, has no room to report potential reductions when they eat 100 g the next day. Similarly, smaller reductions are difficult to meaningfully report. Additionally, the option '*more than 3 portions*' reduced the total meat portions measured, perhaps influencing the effects found. Future research should provide clear guidelines or standardized examples of portion sizes to improve measurement precision and comparability across individuals, as well as allow for a large range of answers.

Lack of Reflection Prompts and Manipulation Check

Meat related cognitive dissonance can be stimulated by having participants reflect on the moral value of animal welfare, but not by reflecting on personal health (Bouwman et al., 2022). This could be explained by the subjective costs depending on framing, with costs for animal welfare being harder to justify than risking just personal health for indulgence. Similarly, then, the environmental impact of meat consumption should trigger dissonance, as it encompasses the moral responsibility for the planet and collective life.

However, although the study was framed sustainably and asked about dietary impact estimates, there was no further prompt throughout the study to reflect on the environmental impact. More frequent meat eaters showed a higher tendency to actively avoid thinking about counterattitudinal information, unless prompted to reflect on animal welfare (Bouwman et al., 2022). Similarly, in absence of repeated specific reflection prompts participants in the current study might have actively avoided thinking about the impact too much, perhaps still changing their diet because of the facilitating nature of the study, but without letting themselves experience too much dissonance.

To avoid ambiguity about the effect and success of the manipulation, future studies should include a dedicated manipulation check for awareness of inconsistencies.

Attitudinal Change Not Assessed

A limitation in studying the change process is the absence of an attitudinal change measure. Although the general focus of this thesis was behavioural change and consequent stabilisation, insights in attitudinal change could have further explained lack or presence of behavioural change. As attitudes are related to behavioural change, it is important to understand their role in the complex interplay of dissonance mechanisms. However, values are typically

considered relatively stable over time, particularly in the absence of major life events or sustained interventions. Future studies might explore alternative indicators of attitudinal change, such as open-ended reflections or implicit measures, to complement behavioural data.

Change Stabilisation Ratio

The Change Stabilisation Ratio (CSR), used to operationalise the speed of behavioural change, has two important limitations. First, identifying which days to compare to assess stabilisation requires clarity about when change begins. Given the relatively short duration of the diary period, it is difficult to determine whether fluctuations reflect participants' habitual patterns or the onset of change driven by increased awareness of inconsistencies. Future research could address this ambiguity by including a pre-intervention baseline period (e.g., one week of habitual diet tracking) followed by a measurement phase during or after the manipulation.

Second, CSR only captures a specific trajectory of change - one that involves destabilisation followed by stabilisation - and may miss other valid change patterns. An example of successful change that would not be captured as such by CSR would be a participant eating three portions of meat every day, then reducing their meat intake by implementing a plant-based diet every other day. Comparing the first with the last days would show destabilisation, although the new diet is essentially stable and behavioural change successful.

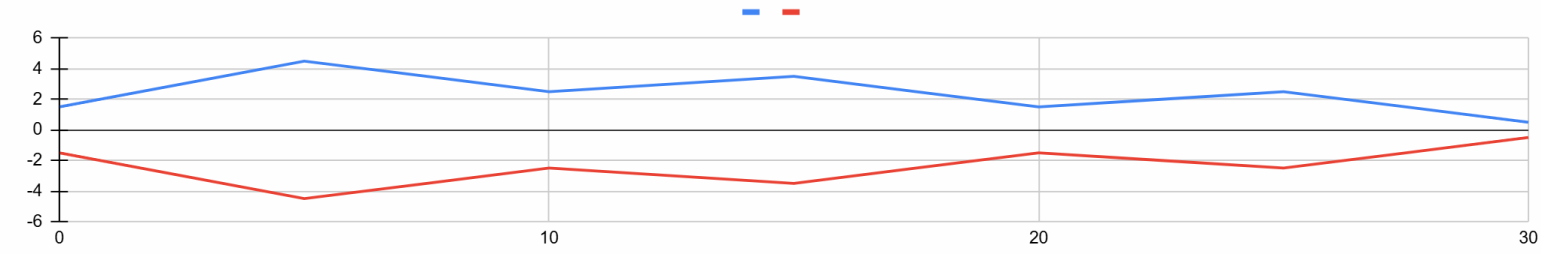
While the exploratory CSRmid analysis attempted to accommodate potential mid-study change onset, it was selected pragmatically, without strong theoretical justification. Future research studying longer time frames can consider if and how to apply CSR to identify change patterns across time.

Possibly, applying a moving-window approach to consecutive CSR calculations - measuring (de)stabilisation from period to period - could help uncover patterns in non-linear

behavioural change. Figure 3 presents a theoretical example of how behavioural fluctuations might evolve beyond the ten-day window used in the current study. The graph until point 10 represents the current study with CSR showing relative destabilisation from the first days to the last of the 10 days, and CSRmid showing stabilisation from the middle to the last of the 10 days. The pattern beyond 10 days is not a prediction, but rather is meant as a visual aid to illustrate the potential added value of using consecutive CSR values to explore behavioural dynamics over time.

Figure 3

Example of behavioural fluctuation pattern beyond 10 days



Conclusion

Effectiveness of dissonance and similar dissonance levels across groups suggest that another effect was responsible for the approaching significance differences in change pattern and total reduction between groups. Serving as awareness manipulation, meal planning most likely caused its own effect, although it was not related to reduction of meat consumption. Combined with the similar dissonance levels across groups and the difference in reduction of meat consumption this could suggest that something might have moderated the effect of dissonance. Perhaps the behavioural consistency of vegetarian meal planning helps align behaviour with values to resolve the inconsistency, focussing the motivational drive of dissonance, so to say.

The quadratic trend observed in the change pattern of the experimental group, combined with their larger total reduction in meat consumption compared to the control group - both approaching significance - suggests that the manipulation may have had an effect that a larger sample size could have detected. Absence of significant differences are likely attributable to awareness in both groups, due to the placebo nature of the control group. Directional consistency in group differences based on dissonance as awareness proxy could suggest support for the effect of awareness of inconsistencies on the speed of behavioural change stabilisation, but future studies are needed as these results stem from post hoc analyses.

The larger effect found among participants that were priorly misinformed about the impact of meat consumption supports the general principles of cognitive dissonance, where belief challenging information exposes people to inconsistencies. The added effect was visible in higher dissonance scores, more vegetarian meal planning, a larger reduction in meat consumption and more behavioural stabilisation. Informed participants might have hidden part of the effect of awareness by efficiëntly handling any inconsistencies, due to previous resolved encounters, reducing the dissonance that they experienced. Future research could consider pre-selecting participants based on, and tailor messages to be belief challenging at various levels of, prior knowledge of meat impacts and plant-based food benefits.

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Appendix A

Dissonance Thermometer

Below are words that can describe different types of feelings. For each word, please indicate how much it describes how you are feeling right now by circling a number on the scale. "1" means "does not apply at all" and "7" means "applies vert' much" to how you are feeling right now. Don't spend much time thinking about each word, just give a quick, gut-level response.

	does not apply at all						applies very much
1. content	1	2	3	4	5	6	7
2. uncomfortable	1	2	3	4	5	6	7
3. angry at myself	1	2	3	4	5	6	7
4. shame	1	2	3	4	5	6	7
5. uneasy	1	2	3	4	5	6	7
6. negative	1	2	3	4	5	6	7
7. friendly	1	2	3	4	5	6	7
8. disgusted with myself	1	2	3	4	5	6	7
9. concerned	1	2	3	4	5	6	7
10. embarrassed	1	2	3	4	5	6	7
11. bothered	1	2	3	4	5	6	7
12. optimistic	1	2	3	4	5	6	7
13. annoyed at myself	1	2	3	4	5	6	7
14. frustrated	1	2	3	4	5	6	7
15. tense	1	2	3	4	5	6	7
16. disappointed with myself	1	2	3	4	5	6	7
17. happy	1	2	3	4	5	6	7
18. guilty	1	2	3	4	5	6	7
19. anxious	1	2	3	4	5	6	7
20. self critical	1	2	3	4	5	6	7
21. energetic	1	2	3	4	5	6	7
22. distressed	1	2	3	4	5	6	7
23. regretful	1	2	3	4	5	6	7
24. good	1	2	3	4	5	6	7