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Goal-framing theory for sustainable food behaviour: The added value of a moral goal frame across different contexts

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ABSTRACT

Supporting sustainable consumer choices is critical as consumers show inconsistencies in their sustainable behaviour. Consumers indicate to value the environment but do not consistently behave in a sustainable manner. This article builds upon goal-framing theory to understand and support the consistency of sustainable behaviours across contexts. More specifically, it contributes to the literature by developing a food-specific goal-framing measurement that adds a moral goal frame to the existing gain, hedonic, and normative goal frames (Study 1; $N = 1{,}100$; measuring goal frames). Moreover, the results reveal a contrast between the gain and hedonic frames that are currently activated in the included real-life food choice situations (Study 2, $N = 1{,}100$; between-subjects design with three real-life food contexts, measuring goal frames, social norms, and intentions) and the moral frame, which is most consistently associated with sustainable behaviours (Study 2 and Study 3 [between-subjects design activating four goal frames, measuring goal frames and sustainable behaviour]). The findings demonstrate the relevance of moral goal frames to enforcing sustainable food transitions, for example by devising means of adapting the food environment to activate consumers' moral rather than gain and hedonic goal frames.

1. Introduction

The recent impactful report of the Intergovernmental Panel on Climate Change (IPCC, Pörtner et al., 2022) indicates that the population faces a wide range of environmental problems, including climate change, loss of biodiversity, and global warming. Moreover, the report and other prior research state that action is required now and that one of the main challenges is changing consumer consumption patterns (Aschemann-Witzel et al., 2019; Pörtner et al., 2022; Steg & Vlek, 2009; Willett et al., 2019).

One means of transitioning to a less environmentally damaging diet is to replace animal-based proteins with more sustainable options (Springmann et al., 2018), such as plant- and insect-based proteins (Dobermann, Swift, & Field, 2017; Onwezen et al., 2021). This is because meat production, especially beef production, is resource-inefficient, making it a significant source of greenhouse gases and other environmentally harmful impacts, such as loss of biodiversity (e.g. Springmann et al., 2018).

Instigating consumer behaviour change is difficult, and although consumers claim to value the environment, they do not always engage in sustainable consumption behaviours. This is the so-called attitude–behaviour gap (ElHaffar, Durif, & Dubé, 2020; Vermeir & Verbeke, 2006). Moreover, consumers exhibit inconsistencies in their consumption of sustainable food (Thøgersen & Ölander, 2003; i.e., regional, seasonal, and organic food purchases, Wieser et al., 2014; the meat paradox, Buttlar & Walther, 2018; Onwezen, 2021) and in their motivation across situations (i.e., at home and outside of the home, Verain et al., 2022). Thus, consumers are not always consistent as they claim to value the environment without these values necessarily translating into behaviour. It is critical to understand these inconsistencies to support sustainable consumption (Prothero et al., 2011). We propose that these inconsistencies not necessarily entail that consumers are irrational, but it is in accordance with goal-framing theory, which states that consumers may activate different goals at different moments (see Section 2.1 for more detail on goal-framing theory). We propose that goal-framing theory can be used to explain consumers' inconsistencies and further understand and support consistent sustainable food consumption. More specifically, the current study contributes to the literature in two main ways.

First, we explore the *added value of a moral goal frame* to shed light on sustainable food choices (see Section 2.2). Goal-framing theory for sustainable choices focuses primarily on hedonic, gain, and social goals

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(e.g., Lindenberg & Steg 2007). We aim to demonstrate that sustainable decision-making extends beyond immediate gains and pleasures by showing that moral goals are also highly relevant. We contribute to the literature by adding a moral goal frame (Barbopoulos & Johansson) and determining whether this addition furthers our understanding of sustainable food choices.

Second, we investigate *whether and how this moral goal frame can be activated across contexts to enhance sustainable food choices* (see Section 2.3). Prior studies suggest that goal(s) can be activated by intervention techniques (i.e., Steinhorst, Klöckner, & Matthies, 2015; Johansson, Barbopoulos, & Olsson, 2020). However, the specific link of activated goal frames to real-life contexts is overlooked. We contribute to the literature by exploring how different food contexts activate different goal frames and related behaviours.

2. Theoretical framework

2.1. Goal-framing theory

Goal-framing theory is most prominently used in psychology (Lindenberg & Steg 2007). This theory states that a specific goal may be activated or become focal depending on both value priorities and situational factors (Steg et al., 2014). Activated goals 'frame' attention, knowledge, and attitudes, affecting how individuals evaluate a specific situation and which goals they pursue (Chong & Druckman, 2007; Pancer, McShane, & Noseworthy, 2017). The theory states that individuals have multiple goals that may or may not be compatible (e.g., Frederick, Loewenstein, & O'donoghue, 2002). Often, one goal is dominant in framing (Lindenberg & Steg, 2007). For example, research suggests that people may focus primarily on the environmental benefits of energy-saving in some situations and on the financial benefits in others, depending on whether an environmental (i.e., normative) or a financial (i.e., gain) goal is activated in the situation (Spence, Leygue, Bedwell, & O'malley, 2014).

Specifically in the context of sustainable choices, experimental studies on the impact of goal activation confirm that consumer choices can be made more sustainable through situational cues that activate sustainability-related goals (Verplanken & Holland, 2002; Tate et al., 2014; Thøgersen & Alfinito, 2020). The three goal frames generally described in the context of sustainable choices are hedonic, gain, and normative goals (Lindenberg & Steg, 2007).

More specifically, a *hedonic goal frame* activates goals related to improving how the individual feels in a particular situation and may entail seeking direct pleasure, seeking tastiness, seeking to experience positive feelings, having a snack, and treating oneself (Lindenberg & Steg, 2007). Hedonic goals refer to immediate pleasures. In the context of food, hedonic goals have been shown to be activated by, for example, exposing respondents to chocolate. The results of the relevant study revealed an impact of the hedonic goal frame on food choices, measured by liking of and craving for chocolate (associations were higher for women than for men, Rozin et al., 1991).

A *gain goal frame* activates goals related to retaining or increasing personal resources. Gain goals have a medium- to long-term time horizon, which extends beyond the short-term time frame of hedonic goals. Examples are price motivations to maintain or improve financial resources, safety orientations to maintain health, and health motivations to feel fit (Lindenberg & Steg, 2007).

A *normative goal frame* activates goals associated with appropriateness, such as behaving appropriately in the view of others and setting a good example (Lindenberg & Steg, 2007). Normative goals relate to injunctive or perceived norms regarding how one 'ought' to behave and to descriptive norms or perceptions of other people's behaviour (Cialdini, Reno, & Kallgren, 1990). For example, someone operating under a normative goal frame may buy organic wine rather than regular wine as a present or may cook a meatless recipe to impress a vegetarian friend.

2.2. A fourth goal frame: moral goals

The current study contributes to the literature in two ways. This section elaborates on the study's first main goal. We apply goal-framing theory to the context of sustainable food choices and explore the added value of a moral goal frame. Although empirical research on goal-framing theory is emerging, important knowledge gaps remain (Steg et al., 2014). In related domains, the focus is mainly on gain and hedonic frames (Barbopoulos & Johansson, 2016), whereas for environmental behaviour, normative goal frames are also widely acknowledged (e.g., Baxter & Pelletier, 2020; Lindenberg & Steg, 2007). The relevance of the moral goal frame is currently underexplored. We contribute to goal-framing theory by demonstrating that sustainable behaviour is triggered not only by immediate and personal goals (see Fig. 1) but also by a long-term perspective that extends beyond personal gains. We propose that consumers are also driven by an intrinsic motivation: the moral goal frame.

We define a moral goal frame as the intrinsic personal conviction to act morally. A moral goal frame is conceptually different from a normative one as it concerns internal standards or norms rather than externally imposed social rules. Related research on environmental behaviour highlights the importance of moral beliefs. For example, the norm activation model (NAM; see Schwartz, 1977) foregrounds the relevance of focusing on personal norms, that is, feelings of moral obligation. Personal norms have repeatedly been shown to be associated with environmentally friendly behaviours (e.g., Gärling, Fujii, Gärling, & Jakobsson, 2003; Onwezen et al., 2013). However, goal frames differ from personal norms because they can vary across contexts. The possibility of moral goals varying contextually is supported, for example, by environmental identity theory, which states that individual environmental values only influence behaviour when environmental identities are activated (van der Werff et al., 2013). This implies that a context can trigger moral goals, resulting in different perceptions, priorities, and behaviour across situations. Thus, based on goal-framing theory, we argue that it is possible to increase sustainable consumption by activating relevant moral goals at the appropriate moment of decision-making (Barbopoulos & Johansson, 2016; Levin, Schneider, & Gaeth, 1998). Barbopoulos and Johansson (2016) identified subgoals for the gain and normative goals and provided a first indication of the presence of a moral goal frame. We contribute to the literature by exploring whether moral goals add to our understanding of sustainable food choices, specifically stated in two propositions:

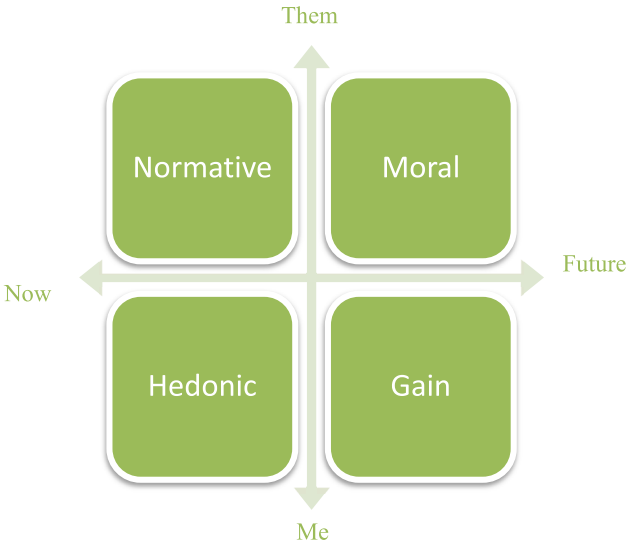

Fig. 1. Visual representation of how the four goal frames relate to one another: a time dimension (now versus future) and a benefits dimension (me versus them).

1. *We propose a fourth goal frame for sustainable food choices, the moral goal frame (Study 1).*
2. *We propose that our understanding of sustainable food choices can be improved by including moral goal frames in addition to hedonic, gain, and normative goal frames (Studies 2 and 3).*

2.3. The relevance of context

Our second main aim relates to the variability of goal frames across contexts. It is unclear how different goals can be activated in specific contexts and to what extent goal frames are stable or variable across situations (Thøgersen & Alfinito, 2020). For example, studies measure goal frames as stable individual variables (Tang et al., 2020) without considering variability across situations. According to Thøgersen and Alfinito, 'studies on "goal-framing" to promote sustainable consumer choices have up till now not included the potential impact of general or stable context factors' (2020). Therefore, an empirical test of how different goals are triggered and whether they can be activated across contexts is needed to further understand the variability of goal frames and their effects on and potential to support sustainable food choices.

Moreover, in related fields, most approaches focus on understanding consumer food choices from the perspective of stable preferences across contexts, such as food choice motives (Steptoe et al., 1995; Lindeman & Väänänen, 2000; Onwezen et al., 2019). Steptoe and colleagues developed food choice motives assuming general importance ratings across time, neglecting variation across contexts. A small body of studies takes into account variation across consumer groups (e.g., Onwezen, 2018; Verain et al., 2020). However, this approach does not include variation over time. Finally, while some studies include context (Marshall & Bell, 2003; Meiselman et al., 2000; Onwezen et al., 2012; Verain et al., 2022), these focus on how motivations and behaviour vary across contexts and not on the mechanism underlying this variation. The current study adds to the literature by using goal-framing theory to understand variation within individuals across contexts and moments in time.

Previous studies show that different goal frames can be activated (e.g., Evans et al., 2013; Geng, Long, & Chen, 2016). For example, Keizer and colleagues demonstrated that observing norm violations weakened the relative strength(s) of normative goal(s) and strengthened hedonic and gain goals (Keizer et al., 2008). Thøgersen and Alfinito (2020) found that it was possible to activate a hedonic, gain, or normative goal frame and thereby to influence priorities. The respondents in the normative frame were more likely than those in the other frames to choose organic tomatoes. Furthermore, other studies suggest that goal(s) can be activated through intervention techniques (i.e., Steinhorst, Klöckner, & Matthies, 2015; Johansson, Barbopoulos, & Olsson, 2020). These studies generally show that goal frames can be activated by different types of interventions. However, the link between activated goal frames and real-life contexts is understudied. This results in the third proposition:

3. *We aim to reveal which contexts activate moral goal frames to support sustainable food choices and the mechanisms underlying this activation (Studies 2 and 3).*

3. Study 1: Development of a goal-framing measurement for food

Study 1 aimed to develop a food-specific goal-framing measurement and explore the added value of a fourth goal frame: the moral frame.

3.1. Method

Respondents were recruited via a research agency (MSI-ACI) and asked to complete an online survey. The survey was conducted in 2021 with a Dutch sample of 1,100 respondents (male: 48.9 %) with a mean age of 46.24 (SD = 16.18). For confirmatory factor analyses, 1,000 + respondents is generally considered suitable in terms of power (Comrey & Lee, 1992).

3.1.1. Measurements of goal framing

Based on the work of Barbopoulos and Johansson (2016), we developed items to measure the four possible goal frames. We selected and adapted items to fit the measurement scale to the food context. We used measurement scales of the food choice motives (Onwezen et al., 2019; Steptoe et al., 1995) to include specific food-related examples in the items, such as health, mood, social justice, and the environment. We adapted the layout based on the example of de Groot and Steg (2007) so that all items appeared with a consistent layout and the most prominent goals were highlighted for each item. See Appendix A for more details on the development of the measurement scale.

We asked respondents to indicate the importance of goals for their daily food choices. All items were measured on Likert scales ranging from 0 ('opposing my principles') to 7 ('extremely important in my life'). All items, means, standard deviations, and factor loadings are shown in Table 1.

3.2. Results

3.2.1. Exploratory factor analysis

Because we had made slight adaptations to Barbopoulos and Johansson's (2016) measurement scale, we began with an exploratory factor analysis (EFA). This analysis explores whether all items load on the expected dimensions. We used SPSS to perform principal components estimation with all 20 items. Oblique rotation was employed, as correlations between factors were expected. The four factors were based on previous studies and our theoretical model. The items loaded on the expected dimensions: gain, hedonic, normative, and moral goal frames. Three items were excluded from further analyses, as they either did not load on a hypothesised dimension or loaded on multiple dimensions (Items 3, 4, 6, and 20, as shown in Table 1).

3.2.2. Confirmatory factor analysis

Subsequently, as in previous studies in the field (Lindeman & Vaänanen, 2000; Verain et al., 2021), we performed confirmatory factor analysis (CFA) in the open-source software R with two goals. First, we aimed to explore whether the overall model, including all items within the four dimensions, showed model fit. Second, we aimed to fit various nested models to determine whether differentiating between moral and normative frames adds to our understanding of goal-framing theory. We used several fit indices to test the model fit. The Tucker–Lewis Index (TLI) and Comparative Fit Index (CFI) are generally considered to indicate a good fit if they exceed 0.9. Moreover, we used the root mean square error (RMSEA) and the standardised root mean square residual (SRMR). The thresholds for these fit measures vary between < 0.05 (Schmitt, 2011) and < 0.07 (Steiger, 2007) or < 0.08 (Kline, 2005). Finally, we used the normalised chi-square divided by degrees of freedom (χ^2/DF). The criterion for acceptance of χ2/DF varies from < 2 to < 5. Finally, we report the Akaike Information Criterion (AIC) to provide insight into the model comparisons and their relative information loss.

The first step involved testing the overall model fit. Initially, a CFA was performed to do so. The four-factor structure showed a good model fit: (χ^2/DF = 1,348.543/113 = 11.93, TLI = 0.916, CFI = 0.930, and RMSEA = 0.070; SRMR = 0.059, AIC = 118,062.781). For CFA analyses, the composite reliability (CR) and average variance expected (AVE) scores can be used to explore the internal consistency of each dimension. CR is an estimate of reliability and should be > 0.6 (Bagozzi & Yi, 1988). AVE explores the level of variation (versus the level of measurement error), and the threshold is > 0.5 (Fornell & Larcker, 1981). For each dimension, the CR and AVE scores were as follows: gain (CR = 0.47; AVE = 0.72), hedonic (CR = 0.55; AVE = 0.86), normative (CR = 0.83; AVE = 0.61), and moral (CR = 0.54; AVE = 0.86). This indicated that the overall measurement scale performed well as all measurements are

Table 1
Items for the goal-framing measurement for food (including means, standard deviations, and factor loadings).

When choosing food, the following goals are important to me:
0 = not important at all; 7 = goal is extremely important as a guideline in my life

Item number	Items	*M*	*SD*	Factor loadings 1	2	3	4
1	Financial well-being: economic choices, price-consciousness to maintain or improve one's financial situation	6.19	1.31	0.051	0.106	−0.055	**0.820**
2	Price advantages: a good price/quality ratio	6.35	1.21	−0.029	−0.007	0.105	**0.832**
3	Improving health: improving one's health in the future	6.33	1.26	0.591	−0.078	0.198	0.014
4	Improving well-being: feeling good in the future	6.30	1.23	0.627	−0.025	0.225	0.122
5	Safety: safe choices	6.22	1.35	0.408	0.034	0.055	**0.615**
6	Future improvement: choices that will improve one's life in the future	6.12	1.28	0.645	0.062	0.113	0.118
Gain frame α = 0.726							
7	Good feeling: emotion, a pleasant and good feeling	6.35	1.25	0.345	0.044	**0.588**	−0.021
8	Tasty: taste, experience, and perception	6.58	1.15	0.052	−0.174	**0.617**	0.286
9	Pleasure: improving short-term well-being, pleasure, fulfilment of desires	6.00	1.35	−0.053	0.242	**0.756**	0.020
10	Pampering oneself: enjoying pleasant activities	6.29	1.27	−0.056	0.065	**0.795**	0.121
11	Enjoying life: relaxing and enjoying	6.66	1.18	0.132	−0.044	**0.776**	0.011
Hedonic frame α = 0.860							
12	Following ideals: making choices that align with one's ideals	5.98	1.29	**0.660**	−0.057	0.177	0.020
13	Morality: standing up for what one believes in, leading by example	6.13	1.41	**0.732**	−0.044	0.078	0.016
14	Other generations: considering the consequences for others	5.59	1.60	**0.811**	0.163	−0.242	−0.023
15	Social justice: correcting injustice, caring for the weak	6.01	1.53	**0.776**	0.031	−0.164	0.112
16	Oneness with nature: feeling connected with nature	5.53	1.71	**0.706**	0.130	−0.003	−0.060
Moral frame α = 0.834							
17	Right behaviour: making choices that fit the values of one's friends and family	4.94	1.89	0.021	**0.830**	0.022	0.048
18	Social environment: making choices approved by environmentalists	4.77	1.86	0.023	**0.856**	−0.039	0.066
19	Prestigious behaviour: showing others that one is doing what is right	4.34	1.94	−0.020	**0.816**	0.052	0.011
20	Self-confidence: seeing oneself as a good person in the eyes of others, strengthening one's self-confidence	5.76	1.58	0.268	0.459	0.341	−0.070
Normative frame α = 0.826							

Note. Items 3, 4, 6, and 20 were removed from further analyses as they either did not load on the hypothesised dimension or loaded on multiple dimensions. M = mean, SD = standard deviation.

above the thresholds. Note that although the gain CR score is slightly below the threshold, a CR below 0.50 is acceptable when AVE is higher than 0.6, which is the case here (Fornell & Larcker, 1981). Together, these findings highlight the acceptable performance of the goal-framing measurement scale for food.

The second step involved testing various models to explore the added value of differentiating between normative and moral frames. The best-performing model was selected based on the fit indices and a chi-square test. Chi-square difference tests are used to compare nested models and determine whether one model's fit is significantly better than those of the others.

We conducted two tests to determine whether differentiating between normative and moral goal frames added value. First, we tested a model in which we forced all normative and moral items onto one dimension. The model fit of the factor structure from the EFA (four dimensions) was compared to the model fit of the baseline model (with one factor for normative and moral gains) using a chi-square difference test. The results showed a significantly better model fit ($\Delta\chi^2$ = 1,401.844; ΔDF = 3; p <.001) for the four-factor model compared to the three-factor model (χ^2/DF = 2,750.387/116 = 23.7, TLI = 0.826, CFI = 0.852, and RMSEA = 0.102; SRMR = 0.078, AIC = 119,458.62), indicating the relevance of differentiating between normative and moral goal frames. Second, we developed a nested model in which we tested whether normative and moral goal frames were part of a higher-order dimension. The results showed a good model fit (χ^2/DF = 1,352.547/114 = 23.7, TLI = 0.917, CFI = 0.930, and RMSEA = 0.070; SRMR = 0.059, AIC = 118,064.786), and a chi-square difference test revealed a significantly better model fit for the four-factor model than the nested model with sub-dimensions ($\Delta\ \chi^2$ = 4.0043; ΔDF = 1; p <.05). This indicates that moral and normative frames are best regarded as separate main goal frames.

Thus, the results demonstrated that our food-specific measurement of goal frames performed well (showing good model fit and reliability). We revealed four dimensions of goal frames in the context of food choices: gain, hedonic, normative, and moral frames. The findings thus underscore the relevance of a fourth goal frame: the moral goal frame.

4. Study 2: Recall of goal frames in real-life food purchase contexts

Study 2 explored whether the identified goal frames vary across different contexts. We used recall of frequently encountered eating contexts to obtain an initial idea of whether and how these goal frames vary across contexts in real life. We selected three contexts in which food is regularly purchased: at the supermarket, online, and on the go (e.g., Onwezen et al., 2012; Verain et al., 2022). We explored whether these contexts triggered different goal frames. Moreover, we hypothesised and explored the predictive validity of the different goal frames. We proposed that the goal frames activate related perceptions and intentions, such that perceptions of norms relate to the normative frame, intentions to behave sustainably relate to the moral frame, intentions to purchase affordably relate to the gain frame, and intentions to purchase tasty products relate to the hedonic frame.

4.1. Method

We contracted a research agency (MSI-ACI) to recruit participants and conduct an online survey. The online survey was administered in 2021 to a Dutch sample of 1,100 respondents (male: 48.9 %) with a mean age of 46.24 (*SD* = 16.18). The respondents were randomly divided into three groups and asked to recall events to explore differences in the goal frames that are primarily activated at the supermarket, online, and on the go. G-Power was used to calculate the post-hoc power (thus, using the sample size and effect size of our data) of the regression analyses. The results indicated good power (power > 0.90) for all regression analyses.

4.1.1. Study design

The respondents were randomly divided into three groups. They were asked to imagine one of three scenarios: that they were in the supermarket to do their daily shopping, that they were going to order food online to treat themselves, or that they were on the road and stopping at a gas station to quickly buy something to eat because they were hungry. Afterwards, the respondents were asked to complete a survey measuring activated goal frames, social norms, and intentions. See Appendix B for details on the design and instructions.

4.1.2. Measurements

The goal frames were measured similarly to Study 1 and shown to be reliable ($\alpha^{gain} = 0.72$; $\alpha^{hedonic} = 0.86$; $\alpha^{social} = 0.82$; $\alpha^{moral} = 0.85$).

Perceptions of norms were measured following previous studies (Onwezen et al., 2013). *Injunctive social norms* were measured using three Likert-scale items. The items asked whether participants believed that their family, friends, and/or colleagues wanted them to consume less meat (ranging from 1 'completely disagree' to 7 'completely agree'). Cronbach's alpha was shown to be good ($\alpha = 0.96$). *Descriptive social norms* were measured using three Likert-scale items. The items asked whether participants believed that relevant others (i.e, family, friends and colleagues) are consuming less meat (ranging from 1 'completely disagree' to 7 'completely agree'). Cronbach's alpha was shown to be good ($\alpha = 0.93$).

Intention was measured using six single items related to long-term well-being (health and price), sustainable intentions (eat less meat and smaller portions of meat), and hedonic intentions (tastiness and enjoyment of food). Specifically, the items were 'in the upcoming three weeks I intend to … eat less meat/eat smaller portions of meat/eat healthy/make price-conscious decisions/choose tasty food/enjoy food') and were rated on a 7-point Likert scale (ranging from 1 'completely disagree' to 7 'completely agree').

4.2. Results

The goal frames were centred to control for answering tendencies (Cleaver & Wedel, 2001). Fig. 2 reveals that the hedonic and gain frames were most often activated across all situations. We performed ANOVAs to explore differences in goal frames across the imagined contexts. The results revealed significant differences across contexts for hedonic frames, $F(2, 1099) = 3.548$, $p < .05$, 95 %, $\eta^2 = 0.006$, CI [0.5328, 0.6202]; moral frames, $F(2, 1099) = 2.907$, $p = .055$, $\eta^2 = 0.006$, CI [−0.1171, −0.506]; and normative frames, $F(2, 1099) = 3.109$, $p < .05$, $\eta^2 = 0.006$, CI [−1.2322, −1.0955] but not for gain frames, $F(2, 1099) = 2.254$, $p =$ n.s., $\eta^2 = 0.004$, CI [0.3290, 0.4124]. More specifically, hedonic frames were most relevant for online purchases (compared to the other food contexts), and normative goals were least relevant for supermarket purchases. The results thus indicate that different frames might be activated in different contexts.

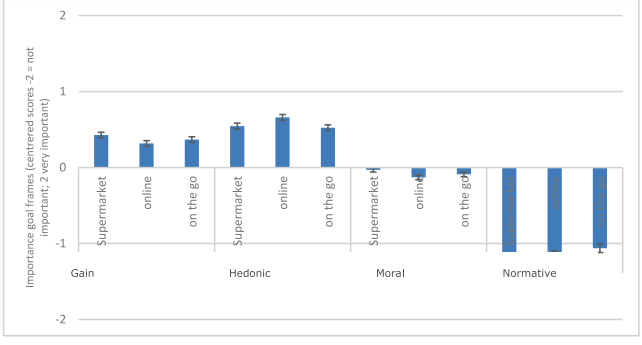

Fig. 2. Centred scores showing the self-reported goal frames across recalled contexts.

4.2.1. Predictive validity

We also asked the respondents to report their perceptions of social norms and intended purchases to explore the predictive validity of the goal frames. We performed separate regression analyses for the four goal frames across all contexts. We included goal frames as independent variables and the social norm and intention measures as dependent variables.

The results (Table 2) revealed that moral frames were associated with the sustainable and healthy behaviours of eating less meat, eating smaller portions, and eating healthily. The gain frame was associated with price-consciousness and the hedonic frame with tasty choices and enjoying food. The normative frame was not significantly associated with behavioural intentions, although it showed a significant association with norm perception. These results indicate that the identified goal frames were associated with the proposed related measures, indicating the predictive value of goal frames.

Study 2 thus revealed that recall of different real-life food environments resulted in small variations in the relevance of different goal frames. Moreover, the findings underscore the predictive validity of food-related goal frames, showing that the goal frames are associated with the related social norms and intentions. More specifically, as proposed, they indicate that moral goal frames have added value beyond the gain, hedonic, and normative frames in explaining sustainable intentions and have the strongest association with sustainable intentions to reduce meat consumption.

5. Study 3: Activation of different goal frames within a supermarket context

Study 2 revealed that goal frames can vary across real-life recalled food contexts. However, other associations related to these real-life contexts (e.g., routines, familiarity with the context) might have influenced the results obtained. Study 3 therefore explored whether goal frames can be activated within the same context by using different imagined goal frames. We aimed to activate the four goal frames within the supermarket context and explore their association with behavioural measures. We tested the hypothesis that activating moral goals activates the moral goal frame (more than the other goal frames), which in turn triggers sustainable food choices.

5.1. Method

The respondents were recruited via a research agency (MSI-*ACI*) and asked to complete an online survey. The online survey was conducted in 2021 with a Dutch sample of 1,651 respondents (male: 48.9 %) with a mean age of 46.24 ($SD = 16.18$). G-Power was used to calculate the ANOVA power post hoc (thus, using the sample size and effect size of the current study), and the results revealed good power (power > 0.95).

5.1.1. Study design

The respondents were randomly divided into four conditions in which one of four goal frames was activated. They were asked to complete some survey questions, including a manipulation check of goal frames, and two measures of sustainable behavioural intentions (see Appendix B for all details).

5.1.2. Activating different goal frames

The respondents were randomly assigned to one of four conditions. In each condition, the respondents were asked to imagine being in the supermarket and a goal frame was activated:

1. *Activating hedonic frame: Imagine you are in the supermarket and feel like treating yourself. You are going to make a dish that you really like and can really enjoy.*

Table 2
Regression analyses showing the association of goal frames with social norms and intentions.

	Less meat	Smaller portions of meat	Eating healthy	Price-consciousness	Tasty choices	Enjoy food	Injunctive norm	Descriptive norm
Hedonic	−0.138	−0.097	0.105	−0.052	**0.311**	**0.337**	−0.121	−0.092
Gain	−0.052	−0.015	0.093	**0.384**	0.100	0.087	−0.124	−0.102
Normative	0.120	0.106	−0.130	−0.112	−0.191	−0.212	**0.439**	**0.269**
Moral	**0.299**	**0.263**	**0.243**	0.016	0.054	0.089	0.048	0.123
	$F(4, 1099)$ 30.968; p <.001; R^2 = 0.102 CI [2.004, 3.429]	$F(4, 1099)$ 26.056; p <.001; R^2 = 0.087 CI [1.816, 3.211]	$F(4, 1099)$ 33.326; p <.001; R^2 = 0.109 CI [2.598, 3.593]	$F(4, 1099)$ 36.007; p <.001; R^2 = 0.116 CI [2.467, 3.515]	$F(4, 1099)$ 47.743; p <.001; R^2 = 0.148 CI [2.856, 3.692]	$F(4, 1099)$ 58.364; p <.001; R^2 = 0.119 CI [1.762, 2.779]	$F(4, 1099)$ 62.765; p <.001; R^2 = 0.187 CI [1.795, 2.892]	$F(4, 1099)$ 28.905; p <.001; R^2 = 0.096 CI [2.171, 3.311]

Note. We also used ANOVAs to determine whether the associations between goal frames and intentions were stronger in specific contexts. All interaction effects were insignificant. The bold results denote the strongest associations between the goal frames and dependent measures.

2. *Activating gain frame: Imagine you are in the supermarket and want to buy products that benefit you. You are going to make a dish that has a good price/quality ratio and is healthy for you.*
3. *Activating moral frame: Imagine you are in the supermarket and like to choose products that match your personal values. You are going to make a dish that considers the environment and animal welfare.*
4. *Activating normative frame: Imagine you are in the supermarket with a friend and are buying groceries. You are going to make a dish based on what they think is a good choice.*

5.1.3. Measurements: Manipulation check

A manipulation check was included to check whether the respondents activated different goal frames under the different conditions. The respondents were asked to indicate the goal that informed their response to the question: immediate enjoyment and a good feeling; advantages such as price, well-being, and health; following their own principles and values; or considering what others thought important.

5.1.4. Measurements: Sustainable behavioural measures

We included two measures as proxies for sustainable behavioural intentions.

The respondents had already been asked to imagine being in a supermarket and *preparing a dish*. We asked them to report which meals they planned to make for dinner. They responded to this question in an open answering field. We scored these meals as vegetarian or non-vegetarian as a proxy for sustainable choices.

Moreover, we asked the respondents whether they would like to choose between two types of *gift cards* as a thank-you gift for their participation. We asked them to indicate whether they wanted a vegetarian gift card worth 25 euros or a regular gift card worth 20 euros. We used their response as a proxy for sustainable behavioural intentions.

5.2. Results

5.2.1. Manipulation check

An ANOVA with the four conditions as independent variables and the manipulation check as a dependent variable revealed that the manipulation check worked as expected, $\chi 2\ (9, N = 1{,}651) = 341.54$, $p < .001$, see Fig. 3. For each frame, activating the corresponding frame aligned with individuals stating that they used that specific frame to make their choices. The gain and hedonic frames were reported more frequently under other conditions, indicating that these frames were used more regularly or were more difficult to deactivate.

5.2.2. Sustainable behavioural measures

The scores for respondents' plans to prepare a vegetarian or non-vegetarian dish were used to explore differences in sustainable intentions across conditions. The results revealed a significant difference across conditions, $F(3, 1674) = 4.353$, $p < .05$, $\eta^2 = 0.008$. Post-hoc tests revealed that the moral frame condition ($M = 0.2025$) differed significantly from the hedonic ($M = 0.1226$, CI [0.0199, 0.1479]) and gain frame ($M = 0.1330$, CI [0.0066, 0.1372]) conditions but not from the normative frame condition ($M = 0.1557$, CI [−0.0152, 0.1140]), indicating that the moral and normative frame conditions mainly activated sustainable intentions regarding preparing a vegetarian dish.

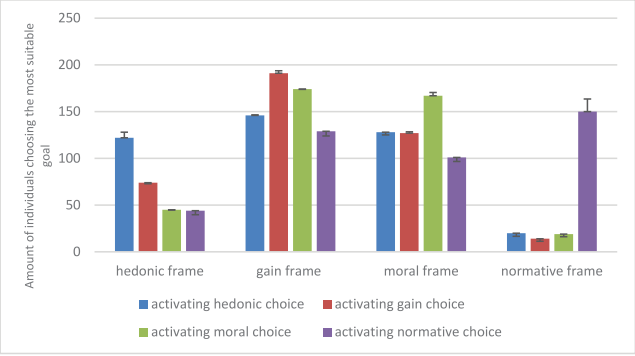

Fig. 3. Responses to the manipulation check for each condition.

Respondents' choices of a sustainable or regular gift card were used to explore differences in sustainable intentions across conditions. An ANOVA with choice of vegetarian (25 euros) or regular (20 euros) gift card as dependent variable showed a significant difference across conditions of goal frames, $F(3, 1674) = 3.096$, $p < .05$, $\eta^2 = 0.006$. Post-hoc tests revealed that the normative frame promoted the intention to select the vegetarian option ($M = 1.69$) more than the hedonic frame ($M = 1.59$, CI [0.01, 0.19]), indicating that the normative frame is more strongly associated with vegetarian choices than the gain frame.

6. General discussion

Consumers are often assumed to have stable preferences, for example regarding their desire to live sustainably. However, according to goal-framing theory, individuals have different goal frames activated at different moments. Thus, although individuals differ in their personal values and preferences regarding sustainability, these variations are not stable across contexts. Individuals can vary in their sustainable behaviours and their motivations for these behaviours depending on which frame is activated by a particular context. This paper adds to the existing body of research by showing that in the context of food choices, it is not only the gain, hedonic, and normative frames that are relevant. We demonstrate the added value of moral frames, showing that moral values can also vary across contexts – sometimes being more relevant in decision-making – and that moral goal frames have the strongest and most consistent association with sustainable intentions compared to the

other goal frames. We further expand on these findings by showing that goal frames vary across recalled situations and can be activated within individuals. We discuss the two main conclusions of the study in more detail below.

6.1. The added value of a moral goal frame

Goal-framing theory is applied in different domains. In psychology, the normative, gain, and hedonic frames are most frequently cited as the most relevant goal frames (Lindenberg & Steg, 2007). Barbopoulos and colleagues (2016) identified sub-dimensions of these goal frames. We add to the literature by showing that moral values are not a subgoal and can be viewed as a main goal frame. In accordance with, for example, environmental identity (Clayton, 2003), this finding reveals that individual moral values can vary depending on whether they are activated by a situation. This finding contributes to goal-framing theory by showing that personal moral values or intrinsic motivations are also relevant to understanding why consumers engage in sustainable behaviour. Previous studies on sustainable behaviour and goal-framing theory (e.g., Lindenberg & Steg, 2007) indicate that sustainable behaviours might stem from different perspectives, for example a gain perspective to save money or become healthier. We show that intrinsic altruistic motivations should not be overlooked as causes of sustainable behaviour. In accordance with the literature, we demonstrate that moral goals are a relevant driving force, as stated in norm activation theory (Schwartz, 1977; Onwezen et al., 2013).

Importantly, activating one goal frame does not entail deactivating the other frames. These frames remain in the background. However, this background activation does not necessarily weaken the workings of the goal frame: when the relevant frames are compatible with the goal frame, they strengthen it. A good example of the alignment between moral frames and gain frames is provided below. Research shows that financial motivation often dominates intrinsic motivation (Steinhorst & Klöckner, 2018; Ryan & Deci, 2000). However, as one would expect from a goal-framing approach, it is not money per se that triggers a particular goal frame, but what it signifies. For example, when financial rewards are positioned as aligning with (rather than dominating) the situation, they increase rather than reduce intrinsic motivation (e.g., Srivastava, Locke, & Bartol, 2001). This example highlights the relevance of positioning sustainable products and behaviours as fitting relevant goal frames. When hedonic or gain goals are most prominent, sustainable products and behaviours might be best positioned as promoting long-term well-being and tastiness. The current findings indicate that moral goal frames are most consistent in increasing sustainable behaviours. Thus, although they are not always dominant, moral values may also be active in the background and might easily be activated by contextual cues. This finding indicates the importance of understanding how the moral frame can be aligned with the hedonic and gain frames. Therefore, we recommend that future research explore how the various goal frames can best be aligned to support sustainable consumption.

6.2. Activation of goal frames

The current study reveals that different contexts trigger different goal frames and that different goal frames can be activated within a single context. Both of these findings underscore the variable nature of goal frames. As stated by Lindenberg and Steg (2007), goal frames are activated by contextual cues. This study contributes to the literature by showing that recall of situations also reveals variations in activated goal frames. The variation was even visible for situations that were selected not to increase differences but to represent frequently occurring food choice contexts (i.e., the supermarket, online, and on the go). This finding enables a future line of studies exploring which situations activate which frames. It may be possible to discover generic rules that explain why particular situations or recalled behaviours trigger certain goal frames in certain individuals. These insights would benefit the food literature, as they provide a route to matching individual and contextual variations. For example, Meiselman (1996) differentiates between food, situation, and individual. These differentiations are useful in disentangling food choices and placing more value on the context. However, theories of how these drivers interrelate are scarce. Goal-framing theory accounts for variation within individuals and contexts, providing a theoretical framework that is compatible with various lines of research.

The current findings highlight new possible applications of goal-framing theory. By showing how the various frames are recalled and activated, the study provides guidelines for practitioners, such as policymakers, marketers, and product developers, in applying goal-framing theory. For example, we show that recall of goal frames can be used to explore which frames are activated in which situations, providing a route to develop strategies or products that fit the activated goals. At present, studies often use goal-framing theory to explain variations without necessarily testing the goal frames (Andsager et al., 2015; Lindenberg & Foss, 2011). These studies treat goal frames as stable preferences without considering variations across contexts (e.g., Hameed & Khan, 2020; Tang et al., 2020). Studies that also include normative frames demonstrate that such frames can be effective in supporting sustainable behavioural intentions (Thøgersen & Alfinito, 2020; Westin et al., 2020). We add to these studies by differentiating between moral and normative frames and showing that moral goal frames can be used to activate sustainable behavioural intentions. Future research might examine the link between stable and context-specific goal frames, revealing the extent to which frames are stable individual preferences that vary across contexts. Moreover, the findings can be used to further explore how sustainable consumption can be supported so that it is consistent across time and across contexts (Prothero et al., 2011). Sustainable consumption is complex, and supporting behaviour change requires complex strategies. Thus, we require research methods and theories that extend beyond the short term and beyond single contexts to support consistent behaviour change.

Considering the findings of Studies 2 and 3 together reveals an intriguing contrast. Study 2 demonstrates that current food choice contexts and related scenarios are primarily associated with gain and hedonic frames and to a much lesser extent with normative and moral frames. Conversely, the moral frame is primarily associated with sustainable intentions. This finding might imply that the contexts in which consumers most frequently make food choices trigger goal frames that drive short-term-focused, tasty, and affordable choices. Current food marketing is focused on the price and tastiness of food. Note that the food contexts included in Study 2 were presented with a scenario that fit the context, such as daily shopping (at the supermarket), treating oneself (shopping online), and feeling hungry (being on the road in a gas station). These scenarios might also have triggered particular goal frames. Thus, although more research is needed to support our conclusions, Study 2 provides a first indication that current food contexts (at least in combination with scenarios) trigger goal frames (i.e., gain and hedonic goal frames) that relate less to sustainable choices than the other included goal frames (e.g., moral goal frame). In future research, it would be valuable to explore how the food environment can be changed such that moral and normative goal frames are activated. Examples include making sustainable choices the default, activating moral values via prints on shopping baskets, or only placing sustainable products near supermarket entrances.

One could also argue that these findings occur because individuals are generally primarily driven by gain and hedonic frames: for example, rational choice theory argues that individuals continuously strive to increase their utility (e.g., Green, 2002). The current findings add to rational choice theory by highlighting that although consumers may indeed strive to realise the greatest rational benefits (i.e., gain frame), it is also possible to activate other goal frames. These findings align with research in behavioural economics, as we extend goal-framing theory beyond traditional economic theories in order to describe human behaviour and, in particular, highlight the relevance of morality in

sustainable decision-making.

6.3. Limitations and directions for future research

The current study has limitations, which might also reflect opportunities for future research. First, goal frames were measured via self-reporting. Although the variation in answering tendencies across individuals and contexts indicates that the measurement reflects personal variations, future research might explore ways to measure goal frames reflecting a real life decision instead of a self-reported Likert scale, for example via a priority task. Use of such a task might reduce the influence of social desirability and personal reflections on the responses. As noted in the introduction, multiple goal frames might be activated simultaneously, potentially resulting in conflicting goals. It would be worthwhile to further explore how these conflicts occur and whether, for example, they result in feelings of ambivalence, as ambivalence is experienced when conflicting beliefs are activated and aversive feelings are experienced (van Harreveld et al., 2015).

Moreover, we used recall of food choices and scenario-based activation of goal frames in Studies 2 and 3. Future research might increase the external validity by measuring goal frames within specific contexts, for example by using a survey in a supermarket versus a restaurant. Real life- contexts would also allow for the inclusion of real-time behaviour choices, such as those that individuals make in a supermarket (e.g., to purchase meat versus a meat alternative). Study 2 used the recall of real-life consumption contexts to obtain an initial indication of how these goal frames vary across decision-making contexts. The various contexts were chosen to represent frequently used decision-making contexts. It would be interesting for future research to select contexts in which large variations are expected, such as going to a restaurant versus the daily preparation of breakfast at home. Moreover, we included varying scenarios (daily shopping, treating yourself, and being hungry) within the recall of a situation. These scenarios were included to enable participants to imagine situations that are likely to occur (for example, daily shopping in a gas station is unlikely). However, these variations might have influenced the results (e.g., by activating different goal frames due to shopping goals rather than context). Future research might omit the scenarios or develop a scenario that fits all contexts, for example 'you are feeling hungry'.

Study 3 measured goal frames as a manipulation check using four answering categories. It would have been worthwhile to include at least parts of the goal-framing scale to explore how this single-item measure relates to the lengthy scale and enables multiple analyses, such as exploring how the goal frames relate to the behavioural choice task.

6.4. Conclusion

The current study reveals that four different goal frames can be identified for food choices: the gain, hedonic, normative, and moral frames. We demonstrate, both theoretically and empirically, that it is meaningful to add moral values to goal-framing theory. Moreover, we show that the moral and other frames vary across consumption contexts and are associated with different motivations, priorities, and behaviours. The moral goal frame shows the most consistent association with sustainable intentions, indicating the relevance of activating this frame to activate sustainable behaviours. However, the currently most often used purchase contexts to buy food, which were presented with related scenarios (daily shopping in the supermarket, treating oneself online, and grabbing a snack on the go), are shown to trigger the gain and hedonic frames associated with the intention to buy tasty and affordable foods. The findings indicate the relevance of devising interventions within these food environments that activate moral goal frames and thereby trigger more sustainable choices, which would ideally contribute to the development of a supportive sustainable environment.

CRediT authorship contribution statement

M.C. Onwezen: Conceptualization, Methodology, Visualization, Software, Funding acquisition.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

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