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A Social Marketing Approach to Voluntary Simplicity: Communicating to Consume Less

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Abstract: Higher eco-efficiency will not be enough to slow global warming caused by climate change. To keep global warming to 2 degrees, people also need to reduce their consumption. At present, however, many who would be able to do so seem unwilling to comply. Given the threats of a runaway climate change, urgent measures are needed to promote less personal consumption. This study, therefore, examines whether social marketing consume-less appeals can be used to encourage consumers to voluntarily abstain from consumption. As part of an online experiment with nearly 2000 randomly sampled users of an online platform for sustainable consumption, we tested the effectiveness of five different "consume-less" appeals based on traditional advertising formats (including emotional, informational, and social claims). The study shows that consume-less appeals are capable of limiting personal desire to buy. However, significant differences in the effectiveness of the appeal formats used in this study were observed. In addition, we found evidence of rebound effects, which leads us to critically evaluate the overall potential of social marketing to promote more resource-conserving lifestyles. While commercial consumer-free appeals have previously been studied (e.g., Patagonia's "Don't Buy This Jacked"), this study on the effectiveness of non-commercial consume-free appeals is novel and provides new insights.

Keywords: social marketing; voluntary simplicity; spending patterns; donation behavior; sustainability; randomized trial; rebound-effect

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1. Introduction

Wasteful consumption habits in wealthy countries combined with too large ecological footprints of individuals pose a threat to the living conditions of both current and future generations. At present, the world population consumes 70% more resources than the planet can naturally regenerate [1]. Private consumption is a major contributor to this earth overshoot. Against this background, the United Nations Sustainable Development Goal No. 12 calls for "ensuring responsible consumption and production patterns." This is not an easy venture because consumption plays a major economic and social role, especially in affluent countries. People in rich nations are socialized from an early age to be good consumers. At home, among friends, and increasingly in social media, narratives of happy consumption are told. Not only can people enjoy consumption in many ways, but they also often use certain brands as personal identification ties and as symbols of their social standing [2]. Achieving material prosperity and social recognition is the meaning of life, and lavish consumption is the way to achieve it. As a consequence, many people in these countries consume far more goods than they really need. However, with regard to an increasing awareness of global warming among the population, various forms of consumer renunciation can be observed. This phenomenon is internationally referred to as "anti-consumption".

The concept of anti-consumption means that consumers avoid subjectively dispensable goods without coercion [3,4]. Anti-consumerism covers various behaviors and activities that resist consumerism in general and wasteful consumption in particular, such as lifestyles

of voluntary simplicity and participation in boycotts [5–7]. Diffusing anti-consumerism among the broad population could be an important measure for resource conservation and climate protection. Although a great deal of research has been conducted on specific issues of anti-consumption, there are still very few studies that suggest effective and practical ways to encourage people not to consume wastefully [4,8,9]. People will only voluntarily refrain from consumption if they are convinced that the climate must be protected, that renouncing consumption is an effective way to do so, and that they can make a personal contribution. Since persuasions can be influenced by communicative tools, effectively designed ads could be one way to work on lowering consumerism.

Commercial advertising focuses on creating demand and is, therefore, often blamed for the exploitation of the planet's resources [10,11]. However, there are good reasons for for-profit companies, especially those that offer high-quality and long-lasting brands, to embrace the concept of green demarketing, a new extension of Kotler's traditional demarketing concept [12]. Green demarketing is defined as "a strategy whereby a brand encourages consumers to buy less at the category level through purchase of the company's brand for the sake of the environment" [13]. If a brand with a high sustainable reputation and image encourages people to consume less for ecological reasons, this can cause shifts in demand in favor of the advertised brand and at the expense of competitors in the corresponding category. Exemplary for this strategy is the outdoor clothing manufacturer Patagonia, which placed the ad "Don't buy this jacket" in the New York Times in 2011 [14]. In this respect, green demarketing is not only a marketing strategy to promote an ecological brand image but also a promising competitive strategy for certain sustainable high-value brands.

More obvious, however, is when, under the responsibility of governments, consumer policy, and civil society organizations, social marketing campaigns take on the task of convincing people to reduce their personal consumption for environmental reasons. Social marketing may provide solutions for a desired transition toward more resource-light consumer lifestyles. For example, some cities have used social marketing programs to effectively reduce household water use [15]. Given the threat of a climate collapse, a growing global population, and increasing resource-based conflicts, public and nonprofit actors should look for ways to persuade people to reduce their consumption significantly [8]. Against this background, the objective of this study is to investigates whether traditional persuasive advertising tools can be successfully used not only to create demand but to promote lower consumption. In consumerist societies, it is easy for commercial advertising to stimulate demand. Advertising encounters an audience that is very eager to consume [2]. Appeals to voluntarily forgo consumption under these conditions have a correspondingly difficult time being heard. Because the overconsumption of resources in rich societies does not stop at specific consumption sectors, this study's approach is based on creating cross-category consume-less appeals. To date, only very few studies have addressed the issue of voluntary consumption renunciation, and almost all have focused on particular consumption categories and specific brands [9,14]. Therefore, there is a great need for research regarding the conditions for the successful use of non-commercial and cross-category consume-less social marketing campaigns. In this respect, it is of great social relevance to gain insights into the conditions under which consume-less appeals are effective.

To generate more knowledge about the design of effective consume-less appeals, participants in a large random sample (N = 2345) of users of an online sustainable consumption platform are presented with only one of five different consumption appeals at a time in an online experiment. Based on the analysis of these experimental data, the present study can contribute in a threefold way to provide new insights into the effectiveness conditions of consume-less appeals. First, we extend the focus of previous green demarketing studies to general, cross-category social consume-less appeals and analyze the effectiveness of different non-commercial appeals to forgo consumption. Second, the effects of five consume-less appeal formats (three pure-mode appeals: informative, social norm, and emotional; two mixed-mode appeals: hedonic and environmental norm endorsed by a picture) on the

willingness to spend less money for consumption are examined within a control-group experimental design. Third, we examine whether decreasing consumption intentions as a result of considering a consume-less appeal lead to an increase in the willingness to donate to climate change mitigation. A climate donation after a consumption renunciation would prevent the individual from spending the money previously saved on other goods (so-called negative rebound effects, [16]).

2. Consume-Less Appeals in the Context of Social Marketing

While commercial marketing has been criticized for stimulating ever-increasing levels of consumption, social marketing aims to influence social ideas, norms and behaviors in a voluntary way to benefit individuals and society as a whole [17,18]. In the past, social marketing was mostly applied in the health domain, for example, to limit tobacco or alcohol consumption [19]. However, according to Peattie and Peattie [20], social marketing also has considerable potential to reduce resource exploitation. Empirical examples in the social marketing context include campaigns for the limitation of household water consumption [15,21], private car usage [22], or plastic bag use [23]. Following Peattie and Peattie [20], social marketing should promote socially beneficial norms, preferences, and behaviors, rather than focus on attitude change toward specific objects or products. In the literature, different communicative appeals have been suggested to encourage simple lifestyles. These include environmental and self-related or hedonic appeals, reference to social norms, and providing information or educating people.

First, social marketing campaigns might use environmental appeals to promote a reduction in consumption. In the study of Ramirez, Tajdini, and David [24], participants who indicated that their electric company had an environmental demarketing program recorded lower monthly electricity usage than the remaining survey takers. Similarly, environmental appeals promoted energy conservation in a field experiment by [25]. The authors compared the effects of four different types of conservation appeals on the participants' electricity consumption as measured by their electricity meter readings. Aside from these studies in the energy context, evidence suggests that environmental messages can also effectively reduce the purchase of clothing [14]. However, Frick et al.´s study [26] failed to demonstrate significant effects of a social media intervention that advertised the benefits of reducing clothing consumption in this way.

Second, researchers caution against creating an image of abstinence or sacrificing when promoting more restrained consumption [27]. Therefore, authors suggest emphasizing the *personal benefits* of reducing consumption in consume-less appeals [20,28]. Human values like freedom, autonomy, and well-being may serve as motives to consume less, claim Hüttel et al. [28]. However, a field study [25] indicated that emphasizing monetary benefits exerts a comparatively low influence on reducing energy usage. However, there are currently insufficient studies on the influence of "is good for me" consume-less appeals, making it impossible to assess their potential impact with certainty.

Third, empirical evidence acknowledges an effective role of *references to social norms* in reducing resource consumption [15,29,30]. A common approach to communicating social norms includes descriptive norm feedback, which refers to how other persons commonly behave or consume. In a field experiment [25], descriptive norms were the most effective of all appeals (environmental protection, social responsibility, self-interest, and social norms) in leveraging peoples' conservation behavior. In a related study, social norm appeals outperformed conventional environmental communications at motivating environmental conservation, according to Goldstein, Cialdini, and Griskevicius [31]. Nevertheless, there are some signs that consumers respond to descriptive conservation norms by raising their consumption levels [32]. Schultz [33] noted this type of response in households that had previously consumed less than the neighborhood average but had since increased their consumption as a result of the descriptive norm treatment.

Fourth, the literature notes the important role of educating consumers and *providing information* on resource-saving consumption behavior [34–36]. Based on explorative inter-

views, Medway, Warnaby, and Dharni [37] identified the provision of information as one key strategy to curb the overtourism of places. However, according to the Nolan et al. [25] and Schultz [33] studies, using descriptive norms to encourage conservation behavior is more effective than the dissemination of factual information. Moreover, Tiefenbeck et al. [38] offered evidence that the benefits of an informative water conservation campaign were partly offset through rebound effects.

In conclusion, the current level of knowledge about social marketing appeals meant to cut back on consumption is fairly limited, with a few exceptions in the domains of energy and water usage [32,39]. Moreover, it is still unknown whether people could be influence to refrain from consumption by appealing to their emotions. Although emotive advertising plays a big part in traditional marketing [40,41], the impact of emotively charged consume-less appeals has not yet been researched. People's behavior is always influenced by a combination of emotions and beliefs since humans inherently respond to communicative appeals both affectively and cognitively. In light of this, this study also examines empirically how moods or emotions affect consumer reluctance.

3. Hypotheses

Advertising campaigns modify their communication concepts for different types of advertising and use different appeals, claims, and audio-visual elements [42–44]. The following appeal styles were used in this study to represent a wide range of common advertising stimuli. An informative appeal, an emotional appeal, and two socio-normative appeals (hedonistic and ecological) were used, each with and without image support (see Figure 1a–d). In addition, two aspects of consume-less behavior are considered here: the willingness to reduce consumer spending and the willingness to make a donation for the climate. Previous advertising efforts have employed these styles of appeal to promote environmentally and climate-friendly behavior [45–48]. These studies have shown that suitable advertising appeals can raise concerns about environment- and climate-friendly behavior. Furthermore, Armstrong Soule and Sekhon [39] demonstrated in their study that the inclusion of overt signals expressing ecological motives as a component of a communication campaign can increase the readiness to engage in anti-consumption actions. Participants in Reich and Armstrong Soule's study [9] showed a more positive response to commercials for green products than to ads for abstaining from that product. However, when a broad consumer renunciation appeal rather than one for the renunciation of a specific product was made, its impact was greater than that of advertising for a green product. These studies support the premise that appeals to abstain from consumption can persuade people to consume less. Therefore, it is assumed:

Hypothesis 1 (H1). *Consume-less appeals reduce the willingness of consumers to spend.*

Appeal 1. Mood-driven video with the subject of simplifying life. Available online (German language): https://www.youtube.com/watch?v=YN_wfPXjyHc (accessed on 20 November 2022).

Furthermore, in Figure 1a–d, appeals 2 through 5 are displayed.

Complementing the analysis of how consume-less appeals enhanced consumers' willingness to reduce spending, this study explores whether such appeals can also increase willingness to make a climate donation. Of course, it is still debatable whether actions taken to alter a specific behavior may have an impact beyond this behavioral change [49,50]. However, some studies have provided evidence for so-called spillover effects as a consequence of rebound behavior [16] and moral licensing [51]. According to Carrico et al. [52], spillover effects have a theoretical foundation in Bem's [53] self-perception theory. According to this, people infer their attitudes from their own observed behavior, at least in part. People who behave ecologically or claim to do so thereby reinforce their pro-environment or prosocial attitudes [52]. In their study, Carrico et al. [52] showed that when people were encouraged to reduce their meat consumption, their environmental concern improved, which in turn made them more likely to donate to environmental causes. Similarly, one might expected

that people who are motivated to consume less by communicative appeals reinforce their ecological concern by being more willing to donate to climate protection. Furthermore, a reduced willingness to spend would increase financial means for nonconsumption-related purposes, such as climate donation. Therefore, it is assumed:

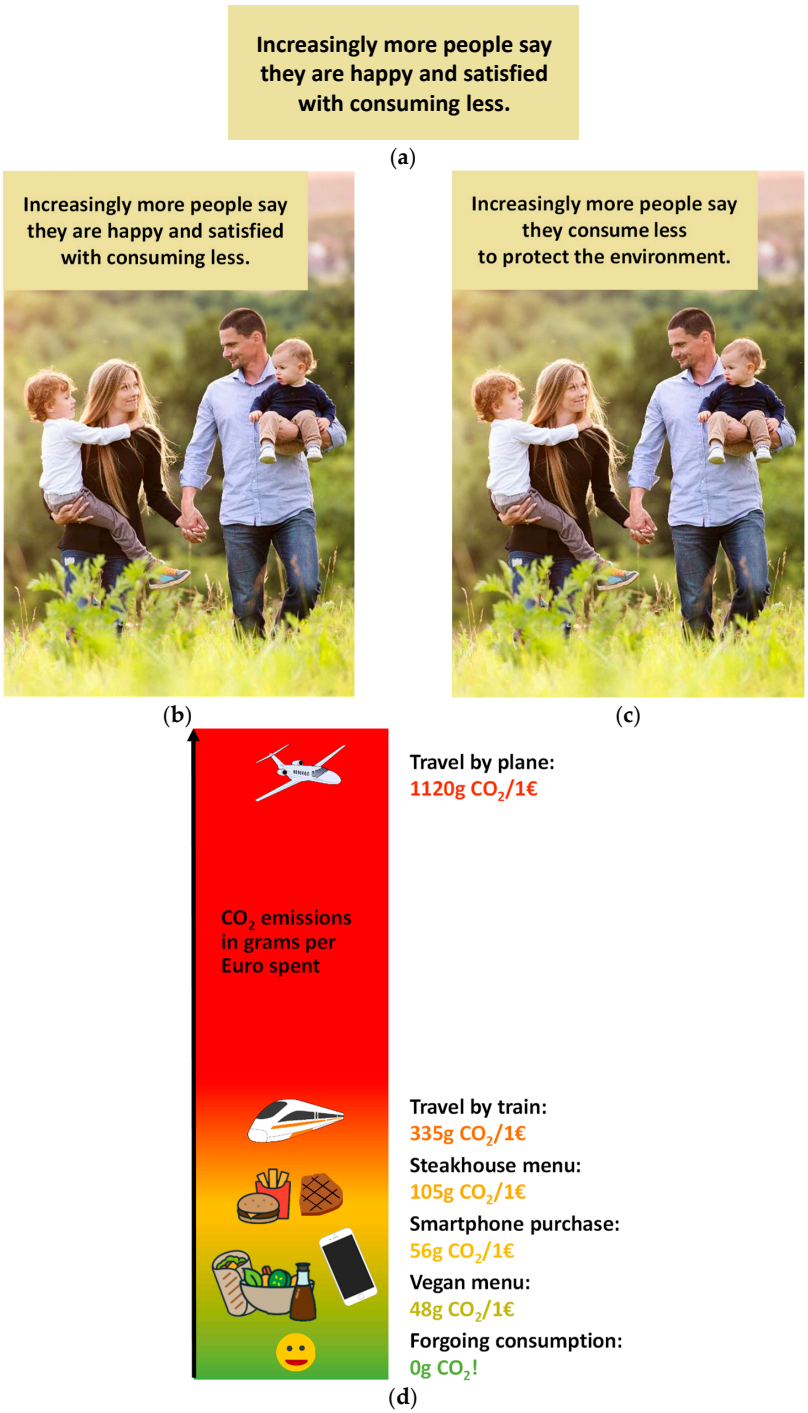

Figure 1. Consume less appeals. (**a**) Appeal 2. Consume-less appeal in the form of an hedonic norm without picture; (**b**) Appeal 3. Consume-less appeal in the form of an hedonic norm with picture. Reprinted with permission from Shutterstock, Inc. Copyright 2019 Shutterstock RF-Lizenzvereinbarung lizenziert; (**c**) Appeal 4. Consume-less appeal in the form of an ecological norm with picture. Reprinted with permission from Shutterstock, Inc. Copyright 2019 Shutterstock RF-Lizenzvereinbarung lizenziert; (**d**) Appeal 5. Informative consume-less appeal.

Hypothesis 2 (H2). *Consume-less appeals increase the willingness to make a climate donation.*

It is well known that so-called endorsers can increase the impact of verbal information on consumers in advertising [54,55]. Endorsers are communicative elements, such as images, that can enhance the impact of advertising. The effects of testimonials, celebrities and third-party endorsements have been very well studied [55]. Pictures are widely used in advertising because they support the processing of verbal messages and contribute to better memory performance [56,57]. Furthermore, pictures in advertising have a higher attention effect, provide higher attractiveness and more likeability, more strongly influence attitudes and can be recalled better than purely verbal material [58–60]. Images are especially helpful when the core verbal message of the advertisement is rather abstract and does not elicit any imagination in the subjects' minds [57]. In green advertising, pictures of an intact natural scene are considered very useful for success [61]. According to Xue and Muralidharan [62], the use of pictures leads to more positive advertising responses for green products. Based on these studies, it may be presumed that consume-less appeals supplemented by pictures are more effective than those without pictures. Therefore, it is assumed:

Hypothesis 3 (H3). *When an image is added, consume-less appeals are more effective in lowering spending intentions*.

4. Methods

4.1. Experimental Design and Procedure

Data for this study were collected using an online questionnaire with an integrated randomized controlled trial with six different conditions (between-subject design). After answering a series of introductory questions on sustainability consciousness, participants were randomly assigned to one of five different consume-less appeals to view or assigned to the control group (no appeal presented) (see Table 1 and Figure 1a–d). The consume-less appeals used various stimuli (social normative, emotional, and informative) and media formats (only verbal, verbal combined with a picture, and video). After viewing their consume-less appeal for a while participants were asked to indicate which of the six given consumption purposes they would allocate EUR 100 to (e.g., for a train trip or the purchase of a smartphone). In addition, demographic information about the participants was gathered (see Table 2).

Table 1. A summary of the study´s consume-less appeals (experimental treatments).

Appeal No.	Type of Appeal	Content	Format [a]
1	Emotional	Mood-driven video with the subject of simplifying life.	Video
2	Social norm (hedonic)	Hedonic benefits of consuming less: "*Increasingly more people say they are happy and satisfied with consuming less*"	Without picture
3	Social norm (hedonic)	Hedonic benefits of consuming less: "*Increasingly more people say they are happy and satisfied with consuming less*"	With picture
4	Social norm (environmental)	Environmental benefits of consuming less for the environment: "*Increasingly more people say they aim to protect the environment by consuming less*"	With picture
5	Informative	Environmental consequences of consumption: carbon footprint information of various food options	Graphic

[a] For the illustrations, please see Figure 1a–d.

Table 2. Descriptive sample statistic for demographics and covariates distinguished by experimental groups and the control groups.

	Mean (SD)						
	Control, n = 421	**1 Emotional, n = 342**	**2 Social Hedonic, n = 378**	**3 Social Hedonic (Picture), n = 399**	**4 Social Environmental (Picture), n = 364**	**5 Informative, n = 424**	**Total, N = 1950**
Demographics							
Age (years)	45.92 (14.1)	44.30 (13.8)	45.43 (14.21)	45.25 (14.14)	44.39 (13.47)	45.09 (14.21)	45.03 (13.96)
Sex [a]	0.85 (0.36)	0.85 (0.35)	0.86 (0.35)	0.82 (0.38)	0.85 (0.36)	0.83 (0.37)	0.84 (0.37)
Household size	2.29 (1.08)	2.33 (1.11)	2.48 (1.19)	2.35 (1.12)	2.43 (1.21)	2.28 (1.14)	2.33 (1.13)
Children in the household	1.27 (0.65)	1.26 (0.61)	1.31 (0.64)	1.32 (0.71)	1.32 (0.76)	1.23 (0.60)	1.28 (0.66)
Employment status [b]	2.11 (0.83)	2.16 (0.77)	2.17 (0.81)	2.10 (0.82)	2.14 (0.80)	2.19 (0.80)	2.14 (0.81)
Education level [c]	4.27 (0.84)	4.21 (0.93)	4.29 (0.90)	4.20 (0.91)	4.20 (0.87)	4.16 (0.88)	4.21 (0.88)
Income [d]	3.45 (1.66)	3.47 (1.70)	3.59 (1.64)	3.35 (1.62)	3.47 (1.74)	3.32 (1.75)	3.41 (1.69)
Covariates							
Consciousness of . . .							
Ecologically sustainable consumption [e]	3.72 (0.75)	3.70 (0.70)	3.71 (0.75)	3.68 (0.72)	3.71 (0.72)	3.69 (0.72)	3.70 (0.72)
Socially sustainable consumption [e]	3.77 (0.79)	3.69 (0.80)	3.7 (0.86)	3.72 (0.84)	3.73 (0.82)	3.74 (0.80)	3.73 (0.81)
Voluntary simplicity [e]	4.34 (0.67)	4.30 (0.65)	4.24 (0.67)	4.33 (0.63)	4.28 (0.62)	4.30 (0.63)	4.31 (0.64)
Collaborative consumption [e]	3.43 (1.11)	3.32 (1.10)	3.54 (1.06)	3.29 (1.08)	3.56 (1.07)	3.54 (1.00)	3.43 (1.07)
Debt-free consumption [e]	4.56 (0.66)	4.50 (0.68)	4.48 (0.65)	4.48 (0.68)	4.49 (0.65)	4.51 (0.64)	4.51 (0.66)
Impulsive buying	7.33 (2.57)	7.66 (2.75)	7.59 (2.78)	7.64 (2.67)	7.45 (2.70)	7.43 (2.62)	7.49 (2.66)

SD = standard deviation. [a] 0 = female, 1 = male; [b] three categories (0 = unemployed, 1 = part-time employed, 2 = full-time employed); [c] five categories (1 = lowest, 5 = highest); [d] 12 categories (1 = lowest, 12 = highest); [e] on 5-point rating scales.

4.2. Experimental Consume-Less Appeals (Treatments)

The informative consume-less appeal. The study's informative appeal provided participants with carbon footprint information of different (sustainable and unsustainable) consumption options: traveling by plane, traveling by train, dining out at a steakhouse, dining out at a vegan restaurant, and purchasing a smartphone (see Figure 1d). Additionally, a zero-emission option was provided, which was labeled "forgoing consumption". A graphic was employed that arranged these options along vertical axes from green to red (low to high CO_2 emissions per euro), thereby adopting a type of traffic-light labeling scheme.

The social norm consume-less appeals. Three formats of social appeals were used in this study: hedonic norm without a picture, hedonic norm with a picture, and ecological norm with pictures (Figure 1a–c). Hedonic social norms address behaviors that many people perform in the hope of increasing their self-esteem and well-being [63]. The hedonic norm used in this study linked the renunciation of consumption to a higher level of personal well-being ("Increasingly more people say they are happy and satisfied with consuming less"). In contrast, the environmental norm focused on the green benefits of reducing consumption: "Increasingly more people say they consume less to protect the environment". By hinting at a collective change in consumer behavior ("Increasingly more people say. . . "), so-called dynamic social norms were applied. Compared to static norms (e.g., "80 percent of consumers behave sustainably"), researchers have shown that dynamic norms are more effective in promoting sustainable behaviors [64]. As an imagery endorser, two of the three social norm appeals were combined with a picture of a happy young family in nature (Figure 1b,c).

The emotional consume-less appeal. People's moods and emotions can be effectively induced by appropriate video spots. Thus, as an emotional consume-less appeal, this study employs a professional advertising clip from a major German discounter´s 2016 campaign with the slogan "simple is more".

4.3. Measurements

In the first part of the survey, the participants' consciousness of sustainable consumption and the tendencies for impulsive buying were measured. We employed the consciousness of sustainable consumption (CSC) scale developed by Balderjahn et al. [65] with its three dimensions (ecological, social, and economic consciousness) and adopted four items by Seegebarth et al. [66] to measure consumers' willingness to buy impulsively. Both measures were assessed on 5-point rating scales (from 1 to 5: disagree totally to agree totally) (see Tables 2 and 3).

Table 3. Covariate item wording, means, standard deviations, loadings and Cronbach's α.

Constructs/Items	Mean (SD)	Loading [a]	Cronbach's α
Consciousness of ecologically sustainable consumption: I only buy a product if I am convinced that...			
...it is made of recyclable materials.	3.59 (0.88)	0.82	0.83
...it is packaged in an environmentally friendly way.	3.84 (0.80)	0.85	
...it is produced in a climate-friendly way.	3.67 (0.85)	0.74	
Consciousness of socially sustainable consumption: I only buy a product if I am convinced that...			
...the human rights of workers are respected.	3.76 (0.86)	0.90	0.94
...workers are not discriminated against.	3.63 (0.91)	0.89	
...workers are paid fairly and equitably.	3.80 (0.84)	0.89	
Consciousness of voluntary simplicity: Even if I can afford a product financially, I will only buy it if...			
...I truly need the product.	4.31 (0.81)	0.78	0.73
...the product is useful for me.	4.44 (0.68)	0.77	
...this product is absolutely necessary for me.	4.15 (0.91)	0.78	
Consciousness of collaborative consumption: Even if I can afford a product financially, I consider whether...			
...borrow the product from friends or acquaintances instead of buying it.	3.63 (1.15)	0.90	0.81
...share the product with others instead of owning it myself.	3.27 (1.18)	0.88	
Consciousness of debt free consumption: I refrain from buying products if...			
...the expenditure for it burdens me excessively financially.	4.66 (0.65)	0.85	0.69
...I will have to limit myself in the future.	4.35 (0.85)	0.87	
Impulsive buying			
I have often bought something that I then did not use.	2.72 (1.12)	0.45	0.61
I like to go shopping every day.	1.71 (0.98)	0.75	
I have a lot of fun with consumption.	2.30 (1.05)	0.75	
I do not think twice before buying something new.	1.93 (1.02)	0.54	
I often buy more than I could afford.	1.57 (0.87)	0.55	

SD = standard deviation. [a] obtained from exploratory factor analysis.

Immediately after the presentation of the consume-less appeal, the willingness to spend money on six given consumption options was measured as an experimental response. For the measurement, participants were asked to imagine receiving a EUR 100 refund for their economical consumption during the previous heating season. They were then asked how likely they were to spend this money on the six consumption options, using 5-point rating scales (from 1 to 5: very unlikely to very likely). There were the following consumption options to choose from: traveling by plane, traveling by train, dining out at a steakhouse, dining out at a vegan restaurant, purchasing a smartphone, and donating to climate-related causes. The spending options included both more sustainable options (e.g., traveling by train) and their less sustainable counterparts (e.g., traveling by plane).

4.4. The Sample

Prior to the main data collection, the questionnaire was pretested among a student sample (N = 326) to ensure item comprehension. Following that, in January 2020, the questionnaire was circulated via newsletter on the German online platform *Utopia.de*.

The platform features content and a discussion forum on the topics of sustainability and sustainable consumption. With approximately ten million unique page visits per month and almost 100,000 newsletter subscribers, the platform is one of the most popular sustainability sites in Germany. The sample includes data from N = 1848 participants after screening for missing cases. Table 2 shows the demographic characteristics of the sample. The majority of participants (approximately 83%) were female, and nearly half had a university degree. Compared to the German average, the respondents were more highly educated, earned above-average incomes and lived in larger households. Each of the five appeal groups and the control group were approximately equal in size (ranging from 248 to 295 participants). According to the results of a Kruskal–Wallis test, with one minor exception (i.e., higher levels of consciousness of collaborative consumption in the environmental social norm condition), no group differences existed with respect to all demographic criteria, the CSC-dimensions or impulsive buying. Randomization was, therefore, successful in this respect. (Table 3).

4.5. Analyses

The experimental data of this study can be analyzed using ANOVA (Analysis of Variance) and dummy-variable regression analysis in principle. Both analysis models yield the same results, but present them in different ways [67]. We chose to run the dummy regression because estimated regression coefficients provide a more solid foundation for interpreting the results. Using the regression coefficients, it is possible to read the impact of the consume-less appeals directly in relation to the control group. Formally, the dummy-variable regression model can be described by the equation.

$$Y = \beta_0 + \beta_k Z_k + \beta_j X_j + \varepsilon,$$

where Y is a response variable (e.g., willingness to spend), Z_k are the k = 6 treatment-groups (i.e., five consume-less appeal groups and the control group), X_j are j covariates (e.g., participants' ecological consumption consciousness), β_k and β_j are regression coefficients, and ε is the residual term. The control group was designated as the reference group through the use of a coding scheme, while membership in one of the five appeal groups was indicated by dummy variables ("1" if a participant belonged to the corresponding appeal group, and "0" otherwise) [68]. The difference between the mean value of the response variables in the control group (reference group) and the corresponding means in the appeal groups is indicated by the regression coefficients of the consume-less appeals.

In this study, we employ three different response variables: willingness to purchase six given consumption items each, willingness to purchase something total, and willingness to donate to climate protection. The participants' willingness to spend on the given sustainable (traveling by train, dining out at a vegan restaurant, and making a climate-related donation) and less sustainable (traveling by plane, dining out at a steak house, and purchasing a new smartphone) consumption options served as response variables to test H1. In addition, to determine the effect of each consume-less appeal on the participants' total willingness to spend, the total sum score of the consumption options (except for the climate-related donation) was calculated. The willingness of participants to make a climate donation serves as the response variable for testing H2. To ensure robust estimation, for the analyses of the individual spending options (measured by 5-point ratings), an ordinal logit regression model with maximum likelihood estimates was used. The following models were specified for analysis: the basic model M1 only investigates the effects of consume-less appeals, demographic characteristics are then added as control variables to M2, and finally, M3 is specified by the extension using covariates (see Tables 3–5). To compare the goodness of fit of the alternative regression models M1, M2, and M3, the Akaike information criterion (AIC) and Bayesian information criterion (BIC) were used. M3 has the lowest values for both fit measures, indicating a higher goodness of fit when compared to the other two models. The results of M3 are, therefore, further discussed here.

Table 4. Effects of consume-less appeals on total willingness to spend.

	Response Variable [a]: Total Willingness to Spend [b]		
	M1	**M2**	**M3**
Constant	11077 (0.174) ***	13.488 (0.353) ***	11507 (0.909) ***
Consume-less Appeals			
1 Emotional	−0.581 (0.255) *	−0.634 (0.257) *	−0.700 (0.246) **
2 Social hedonic	−0.093 (0.248)	−0.092 (0.239)	−0.255 (0.235)
3 Social hedonic (+picture)	−0.520 (0.250) *	−0.534 (0.251) *	−0.584 (0.245) *
4 Social environm. (+picture)	−0.335 (0.254)	−0.356 (0.246)	−0.471 (0.242) +
5 Informative	0.023 (0.244)	−0.004 (0.251)	−0.106 (0.244)
Demographics			
Age		−0.045 (0.005) ***	−0.039 (0.005) ***
Sex		0.343 (0.205)	0.224 (0.200)
Household size		−0.163 (0.065) *	−0.177 (0.063) **
Educational level		0.278 (0.147)	0.321 (0.145) *
Income		−0.059 (0.045)	−0.040 (0.044)
Covariates			
Consciousness of . . .			
Ecologically sust. Consumption			0.076 (0.042) +
Socially sust. Consumption			0.005 (0.035)
Voluntary simplicity			−0.063 (0.040)
Collaborative consumption			0.105 (0.037) **
Debt-free consumption			−0.126 (0.054) *
Impulsive buying			0.203 (0.027) ***
LR-Test [c]	0.052	0.000	0.000
Log Likelihood	−4732	−4691	−4638
AIC	9479	9405	9312
BIC	9517	9472	9411

[a] Standardized beta coefficients are reported (standard errors in brackets). [b] Excluding climate donation. [c] Likelihood ratio test comparing the adapted model with the null model. Note: generalized linear model with maximum likelihood estimation. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Because of the highly skewed distribution of the three less-sustainable consumption options (highest response frequency at the "very unlikely" rating), a Tobit regression for censored data was performed as a robustness check. However, the Tobit estimates were not substantially different from the previous results. Hence, the presentation and discussion of the results are based on the ordinal logit regression analysis. Furthermore, the 2-way interaction effects between consume-less appeals, CSC dimensions, and propensity to make impulse purchases were investigated. The results did not indicate the presence of systematic moderation effects. This means that the impact of consumption-free appeals is not determined by sustainability consciousness (CSC) and the propensity for impulsive purchases.

Table 5. Effects of consume-less appeals on willingness to spend: sustainable options and climate donation.

	Response Variable [a]								
	Travel by Train			**Dine at a Vegan Restaurant**			**Donate to Climate-Related Causes**		
	M1	**M2**	**M3**	**M1**	**M2**	**M3**	**M1**	**M2**	**M3**
Threshold parameters									
1	−1.637 (0.113) ***	−2.462 (0.227) ***	−0.776 (0.550)	−1.383 (0.108) ***	−3.086 0(0.228) ***	−1.639 (0.547) **	−1.49 (0.110) ***	−0.935 (0.217) ***	2.265 (0.549) ***
2	−0.785 (0.107) ***	−1.589 (0.223) ***	0.116 (0.549)	−0.529 (0.104) ***	−2.196 (0.223) ***	−0.712 (0.546)	−0.217 (0.104) *	0.346 (0.216)	3.694 (0.553) ***
3	−0.269 (0.106) *	−1.056 (0.221) ***	0.658 (0.549)	−0.039 (0.103)	−1.681 (0.220) ***	−0.179 (0.545)	0.724 (0.105) ***	1.294 (0.218) ***	4.725 (0.557) ***
4	1.766 (0.116) ***	1.034 (0.222) ***	2.781 (0.553) ***	1.776 (0.113) ***	0.212 (0.218)	1.758 (0.547) ***	2.862 (0.143) ***	3.44 (0.241) ***	6.958 (0.570) ***
Consume-less Appeals									
1 Emotional	−0.360 (0.149) *	−0.379 (0.149) *	−0.352 (0.149) *	−0.297 (0.147) *	−0.324 (0.148) *	−0.301 (0.148) *	−0.334 (0.147) *	−0.324 (0.147) *	−0.281 (0.149) +
2 Social hedonic	−0.039 (0.144)	−0.042 (0.145)	−0.097 (0.147)	−0.042 (0.142)	−0.041 (0.143)	−0.086 (0.145)	−0.199 (0.144)	−0.212 (0.144)	−0.219 (0.147)
3 Social hedonic (picture)	−0.354 (0.146) *	−0.361 (0.146) *	−0.335 (0.147) *	−0.312 (0.144) *	−0.324 (0.145) *	−0.289 (0.146) *	−0.312 (0.143) *	−0.299 (0.143) *	−0.214 (0.146)
4 Social environm. (picture)	−0.157 (0.149)	−0.144 (0.149)	−0.180 (0.150)	−0.029 (0.146)	−0.037 (0.147)	−0.077 (0.148)	−0.147 (0.145)	−0.138 (0.146)	−0.165 (0.148)
5 Informative	−0.173 (0.142)	−0.162 (0.143)	−0.189 (0.144)	0.063 (0.140)	0.037 (0.141)	0.036 (0.142)	−0.160 (0.140)	−0.139 (0.141)	−0.086 (0.143)
Demographics									
Age		−0.014 (0.003) ***	−0.013 (0.003) ***		−0.03 (0.003) ***	−0.031 (0.003) ***		0.009 (0.003) **	0.007 (0.003) *
Sex		0.041 (0.118)	0.019 (0.119)		−0.201 (0.117)	−0.218 (0.119) +		−0.243 (0.117) *	−0.273 (0.118) *
Household size		−0.007 (0.04)	−0.025 (0.041)		−0.059 (0.040)	−0.080 (0.040) *		0.085 (0.039) *	0.055 (0.040)
Educational level		0.487 (0.088) ***	0.475 (0.089) ***		0.184 (0.087) *	0.159 (0.089) +		0.224 (0.086) **	0.187 (0.088) *
Income		−0.115 (0.027) ***	−0.093 (0.027) ***		−0.069 (0.027) *	−0.041 (0.027)		−0.029 (0.026)	0.012 (0.027)
Consciousness of . . .									
Ecol. sust. consumption			0.068 (0.026) **			0.138 (0.025) ***			0.241 (0.027) ***
Socially sust. consumption			0.019 (0.022)			0.033 (0.022)			0.073 (0.022) ***
Voluntary simplicity			0.008 (0.025)			−0.040 (0.025)			−0.022 (0.025)
Collaborative consumption			0.098 (0.022) ***			0.088 (0.022) ***			0.115 (0.022) ***
Debt-free consumption			−0.063 (0.034) +			−0.064 (0.035) +			−0.076 (0.034) *
Impulsive buying			0.047 (0.015) **			0.008 (0.015)			−0.001 (0.015)
LR test [b]	0.057	0.000	0.000	0.032	0.000	0.000	0.216	0.000	0.000
Log Likelihood	−2763	−2727	−2700	−2820	−2759	−2714	−2774	−2765	−2635
AIC	5545	5482	5440	5659	5547	5467	5566	5558	5310
BIC	5594	5560	5550	5709	5624	5577	5616	5635	5420

[a] Standardized beta coefficients are reported (standard errors in brackets). [b] Likelihood ratio test comparing the adapted model with the null model. Note: ordinal logit in generalized linear model with maximum likelihood estimation. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

5. Results

Tables 4–6 present the study's findings for the various response variables (total willingness to spend, willingness to spend on sustainable and less sustainable purchase options, and the willingness for a climate donation). Only participants in the emotional and hedonic social norm (with picture) groups responded with a significant decrease in their total willingness to spend (Table 4). All other consume-less appeals did not significantly influence the total willingness to spend. The results of the study on willingness to spend for sustainable options demonstrate that the emotional and hedonic social norm's (with picture) consume-less appeal significantly decreased willingness to travel by train or dine at a vegan restaurant (Table 5). Regarding willingness to spend money on less sustainable products, participants in the emotional and hedonic social norm (without picture) consume-less appeal group seem to have significantly less interest in traveling by plane (Table 6). Since not all of the consume-less appeals used led to a lower willingness to purchase, H1 can only be partially confirmed.

In contrast to H2, the analysis of model M1′s specification (Table 5) reveals that the emotional and hedonic (with picture) consume-less appeal significantly reduces respondents' willingness to contribute to a climate project. All other consume appeals lacked influence on the willingness to donate. Consequently, H2 must be rejected. H3 assumes that consume-less appeals with pictures outperform appeals without pictures. The study included both a version with and without a picture of the hedonic social norm consume-less appeal. The analysis demonstrates that the hedonic consume-less appeal with a picture lowers purchase willingness more effectively overall than without a picture. However, in one situation (traveling by plane), the hedonic consume-less appeal without a picture had a stronger impact than the one with one. Additionally, there were no negative effects on customers' willingness to purchase from the ecological social norm consume-less appeal with picture. The results are ambiguous so H3 should be rejected.

Table 6. Effects of consume-less appeals on willingness to spend: less-sustainable options.

	Response Variable [a]								
	Travel by Plane			**Dine at a Steakhouse**			**Purchase a Smartphone**		
	M1	**M2**	**M3**	**M1**	**M2**	**M3**	**M1**	**M2**	**M3**
Threshold parameters									
1	0.291 (0.109) **	−0.869 (0.237) ***	−1.662 (0.592) **	0.970 (0.123) ***	1.442 (0.268) ***	1.317 (0.663) *	0.802 (0.121) ***	0.279 (0.248)	0.737 (0.619)
2	1.378 (0.114) ***	0.237 (0.238)	−0.505 (0.592)	1.837 (0.130) ***	2.333 (0.273) ***	2.239 (0.665) ***	2.087 (0.132) ***	1.575 (0.253) ***	2.099 (0.621) ***
3	2.142 (0.126) ***	1.008 (0.242) ***	0.294 (0.593)	2.394 (0.139) ***	2.901 (0.278) ***	2.825 (0.666) ***	2.860 (0.147) ***	2.351 (0.261) ***	2.895 (0.624) ***
4	4.247 (0.231) ***	3.124 (0.309) ***	2.441 (0.623) ***	4.371 (0.238) ***	4.893 (0.338) ***	4.848 (0.693) ***	5.178 (0.310) ***	4.675 (0.377) ***	5.244 (0.682) ***
Consume-less Appeals									
1 Emotional	−0.371 (0.164) *	−0.397 (0.165) *	−0.473 (0.168) **	−0.013 (0.181)	−0.015 (0.183)	−0.059 (0.186)	0.206 (0.172)	0.192 (0.172)	0.147 (0.176)
2 Social hedonic	−0.262 (0.156) +	−0.269 (0.157).	−0.376 (0.161) *	0.168 (0.171)	0.172 (0.173)	0.141 (0.176)	0.252 (0.165)	0.249 (0.166)	0.173 (0.171)
3 Social hedonic (picture)	−0.072 (0.156)	−0.080 (0.157)	−0.155 (0.160)	−0.049 (0.177)	−0.06 (0.179)	−0.136 (0.182)	0.200 (0.168)	0.17 (0.169)	0.118 (0.173)
4 Social environm. (picture)	−0.063 (0.158)	−0.067 (0.160)	−0.120 (0.162)	−0.175 (0.183)	−0.182 (0.185)	−0.208 (0.188)	−0.099 (0.176)	−0.118 (0.177)	−0.162 (0.181)
5 Informative	−0.064 (0.152)	−0.073 (0.154)	−0.133 (0.156)	0.005 (0.172)	−0.022 (0.174)	−0.058 (0.177)	0.258 (0.164)	0.223 (0.165)	0.167 (0.169)
Demographics									
Age		−0.022 (0.004) ***	−0.018 (0.004) ***		0.003 (0.004)	0.006 (0.004)		−0.008 (0.004) *	−0.005 (0.004)
Sex		−0.045 (0.131)	−0.159 (0.135)		0.566 (0.134) ***	0.550 (0.136) ***		.536 (0.130) ***	0.481 (0.134) ***
Household size		−0.144 (0.044) ***	−0.146 (0.045) ***		−0.064 (0.051)	−0.048 (0.051)		−0.022 (0.046)	−0.014 (0.047)
Educational level		0.064 (0.096)	0.113 (0.099)		−0.38 (0.108) ***	−0.323 (0.111) **		−0.045 (0.100)	0.019 (0.103)
Income		0.036 (0.030)	0.026 (0.030)		0.159 (0.033) ***	0.145 (0.033) ***		−0.047 (0.031)	−0.067 (0.032) *
Consciousness of . . .									
Ecolo. sust. consumption			−0.038 (0.028)			−0.092 (0.030) **			−0.020 (0.029)
Socially sust. consumption			−0.038 (0.024)			−0.020 (0.026)			−0.021 (0.025)
Voluntary simplicity			−0.028 (0.027)			0.002 (0.030)			−0.066 (0.028) *
Collaborative consumption			−0.018 (0.025)			−0.042 (0.027)			−0.017 (0.026)
Debt-free consumption			−0.086 (0.038) *			0.023 (0.042)			0.032 (0.040)
Impulsive buying			.121 (0.016) ***			0.104 (0.018) ***			0.147 (0.017) ***
LR test [b]	0.172	0.000	0.000	0.578	0.000	0.000	0.177	0.000	0.000
Log Likelihood	−2040	−2017	−1963	−1668	−1639	−1602	−1796	−1785	−1724
AIC	4099	4062	3966	3354	3307	3244	3609	3598	3488
BIC	4149	4139	4076	3403	3384	3354	3659	3675	3598

[a] Standardized beta coefficients are reported (standard errors in brackets). [b] Likelihood ratio test comparing the adapted model with the null model. Note: ordinal logit in generalized linear model with maximum likelihood estimation. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

6. Discussion and Conclusions

To reach sustainable development goals, scholars have claimed that consumers in affluent societies must generally reduce their consumption levels significantly [69]. Overall, this study adds to the theory and practice of the impact of consume-less appeals on the willingness to refrain from personal consumption. In this study, two consume-less appeals, the emotional appeal and the hedonic social norm appeal, significantly reduced participants' willingness to spend money. In contrast, the informative consume-less appeal containing data on food's carbon footprint had no effect on the willingness to forego consumption. The study participants had a higher level of education and interest in sustainability issues compared to the German population average, and their high level of knowledge, could be a reason for the informative consume-less appeal's poor performance. This is due to the fact that these individuals have already "priced in" this knowledge in their daily purchasing decisions. This result should remind all marketers and policy makers of the fundamental marketing principle of targeting. If a social marketing campaign to promote consumer abstinence is aimed at a highly educated target group, other appeal formats should be used rather than information ones. In general, the study has shown that traditional advertising tools can promote not only demand but also consumption abandonment in the context of social marketing appeals.

In our study, the important role of social norms in bringing about socially desirable behavioral changes becomes apparent. However, the findings paint a mixed picture. While the social norm based on personal advantage (hedonic social norm) significantly reduced the propensity to purchase, the social norm based on environmental protection did not. These results of this study confirm previous research showing that self-interested goals have a more powerful behavioral impact than ethical or sustainable motives [28]. Thus, social marketing campaigns promoting consumer abstinence should bear this in mind, emphasizing the personal benefits of environmental and climate protection. Furthermore, this study shows that using emotional appeals leads to less consumption. In this regard, emotive storytelling in social marketing campaigns should receive more focus in order to effect socially desirable changes. However, as noted in the theory section, the role of emotions in (environmental) social marketing remains largely unexplored. Therefore, further research will be needed to more accurately assess the potential of using emotional consume-less appeals. Surprisingly, consume-less appeals had a greater impact on foregoing sustainable consumption options than less sustainable ones. Because the study sample is made up of users of an online sustainability platform, it can be assumed that they consume more sustainably than the average German. As a result, these individuals have less room to reduce their predominantly sustainable consumption, making this result at least plausible.

All of the study's consume-less appeals failed to persuade participants to donate to climate protection. In contrast, when participants were exposed to the emotional or hedonistic social norm appeal, their willingness to donate for the climate decreased. Moral licensing theory [51,70] may be used to help explain this observation. This theory suggests that the appeals to consume less prompted the participants to consider the sustainability of their real consumption pattern. Participants who believe they are already making significant efforts to protect the environment and the climate give themselves "moral license" to occasionally act less sustainably in other situations (e.g., not donating to the climate).

7. Limitations

Although this study provides new insights in the effectiveness of various consume-less appeals on the willingness to forego personal consumption, it is not without limitations. The sample, experimental design, and appeals tested were all justified but carefully chosen. Participants in the study are mostly well-educated, environmentally conscious people. This sample provides the advantage of gaining insights in how this segment of the population responds to consume-less appeals, but it is not generalizable. Although the consume-less appeals used in the study cover a wide range of communicative appeal formats, they ultimately represent only a subset of all the ways in which foregoing consumption can be

influenced through appeals. In this regard, generalized conclusions can only be drawn with limitations from this study. This requires the use of representative samples.

The money saved by not consuming can potentially be used to pay other products. In such cases, we refer to rebound effects, which can partially offset the reduction in greenhouse gas emissions caused by consumption restraint. Our study, which concentrates on the impacts right away after exposure to consume-less appeals, does not account for this aspect: the time-lagged occurrence of rebound effects due to consumption-saving behavior. To be able to conclusively evaluate the favorable climate impact of abstinence from consumption, more research is required on the circumstances of incidence and magnitude of rebound effects. Overall, there is a significant need for more research into promoting consumer renunciation.

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