Environmental sustainability considerations (or lack thereof) in consumer decision making

Larissa Elmor [a,1], Guilherme A. Ramos [b,c,1,*], Yan Vieites [a], Bernardo Andretti [d], Eduardo B. Andrade [e]

[a] Brazilian School of Public and Business Administration (EBAPE), Fundação Getulio Vargas, Brazil
[b] Owen Graduate School of Management, Vanderbilt University, USA
[c] José Luiz Egydio Setúbal Foundation, Sao Paulo, Brazil
[d] Centre for Health Economics & Policy Innovation (CHEPI), Imperial College London, London, UK
[e] Imperial College Business School, Imperial College London, London, UK

ARTICLE INFO

ABSTRACT

Environmental sustainability is often depicted as an important attribute of consideration among consumers. Even if multiple barriers may prevent them from "walking the talk," a common implicit assumption is that consumers think about sustainability but choose a less eco-friendly route once confronted with such obstacles (e.g., higher prices). Absent from the literature, however, is a systematic investigation of the extent to which sustainability thoughts even come to consumers' minds. Across six studies using a diverse set of measurements (free and aided elicitation), time of purchase (past or contemporaneous), consumer contexts (online or brick-and-mortar settings), levels of consequentialism (hypothetical or incentive-compatible), and samples (Brazil, UK, and US; N=7,942), our research consistently demonstrates that most consumers neglect the products' environmental impact when making purchase decisions of fast-moving consumer goods. Environmental sustainability considerations are low in absolute terms, relative to other attributes, and even compared to participants' own injunctive norms. Cognitive accessibility and contextual salience help explain the phenomenon. Considerations increase among consumers with strong environmental goals (e.g., high on biospheric values), for products highly prototypical of the sustainability cause (e.g., plastic bags), and when consumers are prompted with sustainability cues prior to choice (e.g., eco-labels). Methodological, managerial, and policy implications are discussed, and a simple framework to promote environmental sustainability consideration is proposed.

© 2024 Published by Elsevier B.V.

1. Introduction

It goes without saying that climate change poses formidable environmental, economic, and humanitarian challenges to society (United Nations, 2023). Considered one of the most threatening events our species has ever experienced (United Nations, 2022), the current climatic crisis is unequivocally a product of human action and, notably, our unsustainable consumption patterns (Lee et al., 2023). Since household consumption accounts for a large chunk of global emissions (Dubois

et al., 2019; Ivanova et al., 2016), experts and decision makers increasingly recognize that meaningful behavioral and life-style changes are required to achieve more sustainable pathways (Grubler et al., 2018; Lee et al., 2023).

Although conscious deliberation is not always needed, sustainable consumption often requires consumers to consider the product's environmental impact and choose the more sustainable option. Thus, understanding the extent to which conscious sustainable motives drive consumer behavior is of importance to marketers and policymakers. A general reading of the literature helps us draw two general conclusions. On the one hand, as depicted in Table 1, industry, consulting, and governmental reports and surveys often indicate that a large percentage of consumers consider and value environmental sustainability. For example, in a recent survey across all countries of the European Union, 73 % of consumers indicated that a product's environmental impact was "rather" or "very" important when making a purchase decision (European Commision, 2023). On the other hand, consumers often fail to behave in a sustainable manner because of the multiple barriers that discourage eco-friendly behavior (Carrington et al., 2014; Cornelissen et al., 2008; Eckhardt et al., 2010; Johnstone & Tan, 2015; Lasarov et al., 2019; Lubell, 2002; Park & Lin, 2020; Van Der Wal et al., 2018; White et al., 2019; Zhang et al., 2023), such as higher price (Gleim et al., 2013) or lower perceived quality (Luchs et al., 2010; Skard et al., 2021). Thus, either explicitly stated or implicitly assumed in the academic and gray literature is the notion that the consumer thinks about environmental sustainability when making a purchase but chooses a less eco-friendly route due to the obstacles inherent to sustainable purchase, consumption or disposal.

There is, however, some indirect evidence that consumers may actually neglect environmental sustainability in their purchase decisions. For example, consumers have been shown to increase pro-environmental choices (Ungemach et al., 2018) when prompted with environmental cues (e.g., explicit mentions of sustainability), which may imply that sustainability did not spontaneously occur to them in the decision-making process. Along the same lines, although the majority of the recent reports from practitioners suggest high levels of sustainability considerations among consumers, results vary significantly across the reports (Table 1). Finally, social desirability biases and the salience of the sustainability attribute at the time of reporting likely inflate the extent to which consumers consider and care about sustainability (Cerri et al., 2019; Kaiser et al., 1999).

Across six studies using a diverse set of measurements (free and aided elicitation), time of purchase (past or contemporaneous), consumer context (online or brick-and-mortar setting), level of consequentialism (hypothetical or incentive-compatible), and samples (Brazil, the UK, and the US; N=7,942), this paper systematically quantifies the extent to which consumers think of the product's environmental impact when making purchase decisions of consumer goods. We hypothesize that most consumers overlook environmental sustainability. More specifically, we propose that the rate of environmental sustainability consideration will be lower than (i) the average rate of consideration of other attributes and (ii) participants' own injunctive norms (i.e., whether they think consumers *should* consider it). Finally, we investigate how cognitive accessibility and contextual salience help explain the predicted phenomenon.

This research contributes to the literature on a few fronts. First, over and above the multiple obstacles to sustainable consumption already discussed in the literature (e.g., price, quality, convenience), we assess whether a more basic barrier—environmental sustainability considerations (or lack thereof)—may also represent an important deterrent to sustainable consumption among most consumers. Second, while research on consumer neglect has documented that people tend to overlook aspects such as opportunity costs (Frederick et al., 2009), usage frequency (Goodman & Irmak, 2013; Mittelman et al., 2020), and hedonic adaptation (Wang et al., 2009), we extend this body of work by assessing the extent to which consumers fail to consider environmental sustainability when deciding what to buy. Finally, this research addresses potential methodological limitations from previous industry and governmental studies and, in doing so, makes a substantive contribution to the burgeoning field of sustainable marketing and consumption (Trudel, 2019; White et al., 2019). As some reports suggest, a commonly upheld belief is that the environmental sustainability attribute has become a dominant factor of consideration among most consumers across multiple countries and sectors. By adopting measures of attribute consideration that (a) do not strongly highlight the environmental sustainability attribute and (b) mitigate social desirability effects, this research challenges this belief. Consequently, it also puts into question the tempting conclusions that demand will naturally respond to eco-friendly offers in the marketplace and that the solution to the climate crisis lies in spontaneous changes to consumer preference, often at the expense of the needed changes in governmental policies. The paper also offers actionable managerial and policy insights on how to prompt consumers to consider sustainability or how to embed sustainability into attributes that consumers more spontaneously consider. A simple framework is proposed in the General Discussion section.

2. Attribute neglect: the roles of salience and accessibility

2.1. What consumers neglect

During any decision-making process, consumers have a plethora of factors to consider. Given the multiple possibilities and their limited cognitive capacities, consumers are unable to deliberate on all the relevant pieces of information before they make a choice (Camerer & Loewenstein, 2004; Hoyer, 1984; Pennycook et al., 2021). By resorting to only a few, they often neglect specific attributes (Faure & Natter, 2010), even when those factors are arguably important. Examples in the literature abound. Researchers have shown that consumers overlook opportunity costs (Frederick et al., 2009), future

Table 1
Sample of industry, consulting, and governmental reports.

Source	Year	Sample Characteristics	Measurement	Findings
Kearney's Earth Day Survey (Chafin et al., 2023)	2023	1,000 US consumers	Do you consider environmental impact when making a purchase decision? (never, rarely, sometimes, always/nearly always)	77 % of respondents reported "always/nearly always" (42 %) or "sometimes" (35 %) considering environmental impact.
Flash Eurobarometer 535: The EU Ecolabel (European Commision, 2023)	2023	Representative sample of 26,635 online consumers from 27 member states of the European Union	How important are the following aspects when making a decision on what product to buy?__The [**impact on the environment**/ quality/price / brand] of the product (very important, rather important, rather not important, not at all important, don't know)	73 % of EU respondents consider the product's impact on the environment to be "very" (23 %) or "rather important" (50 %).
IBM Institute for Business Value: Balancing Sustainability and Profitability (Cheung et al., 2022)	2022	16,349 respondents from Brazil, Canada, China, France, Germany, India, Mexico, Spain, United Kingdom, United States	Not available	64 % of consumers said products branded environmentally sustainable or socially responsible made up at least half of their last purchase.
Global Sustainability Study (Simon-Kucher, 2021)	2021	Representative sample of 10,281 consumers from 17 countries	How important is sustainability to you when making purchasing decisions for the following? (Not important at all, slightly unimportant, neutral, slightly important, extremely important)	Across countries, between 48 % (Japan) and 73 % (China) of consumers said sustainability is extremely or slightly important as a purchase criterion.
McKinsey Packaging Survey (Feber et al., 2020)	2020	Data from US consumers	Which of these aspects play an important role in your decision when purchasing products in the following categories? [price, brand, perception of quality, convenient access, product packaging, environmental impact, social impact]	Across 9 product categories, between 10 % (pet food) and 22 % (household cleaning products) of consumers indicated that "environmental impact" plays an important role.
Accenture Chemicals Global Consumer Sustainability Survey (Accenture, 2019)	2019	6,000 consumers from 11 countries: United States, Canada, France, Germany, Italy, Mexico, the United Kingdom, China, India, Indonesia and Japan.	When you purchase a product, what do you take into consideration before making your decision? (quality, price, brand, preference, health& safety certifications, environmental impact, package material, recyclability/reuse potential, shelf appeal)	37 % of the consumers placed environmental impact within 5 top attributes.
McKinsey Global Consumer Sentiment Survey (Grimmelt et al., 2020)	2019	More than 22,000 consumers from 19 countries	How often do you include sustainable packaging in your purchasing decision? (always, usually, sometimes, never) – Data from Global top 10 countries	79 % of all consumers said they always (9 %), usually (24 %) or sometimes (46 %) include sustainable packaging in their purchasing decisions.

expenses (Berman et al., 2016), hedonic adaptation (Wang et al., 2009), usage frequency (Goodman & Irmak, 2013; Mittelman et al., 2020), and product durability (Sun et al., 2021) to name a few.

In this research, we investigate the extent to which consumers overlook environmental sustainability—that is, a product's environmental impact—during their purchase decisions. Note that while consumers might behave in a pro-environmental manner without explicitly attending to sustainability (e.g., when they choose products by price and the eco-friendlier option happens to be cheaper), research has shown that attributes can have a strong influence on choice when they are explicitly considered (Hedberg & Higgins, 2011; Kahneman & Frederick, 2002). Thus, it is important to assess explicit environmental sustainability considerations, which we hypothesize to be absent in most purchase decisions for two main reasons: contextual salience and cognitive accessibility (see Fig. 1).

2.1.1. Contextual salience

Not all features are created equal. In general, the most salient ones—that is, the most noticeable in the purchase context (Lurie & Mason, 2007)—tend to capture people's attention (Higgins, 1996) and, consequently, have a stronger impact on evaluations and choice (Higgins, 1996; Kahneman & Frederick, 2002). This is also true in consumption settings (Lynch et al., 1988). When making purchase decisions, consumers typically consider factors that are explicit in the environment and tend to neglect other equally important but less explicit ones (Sanbonmatsu et al., 2003). The relationship between contextual salience, attention, and consideration is well documented. For example, more visually salient brands in the purchase context
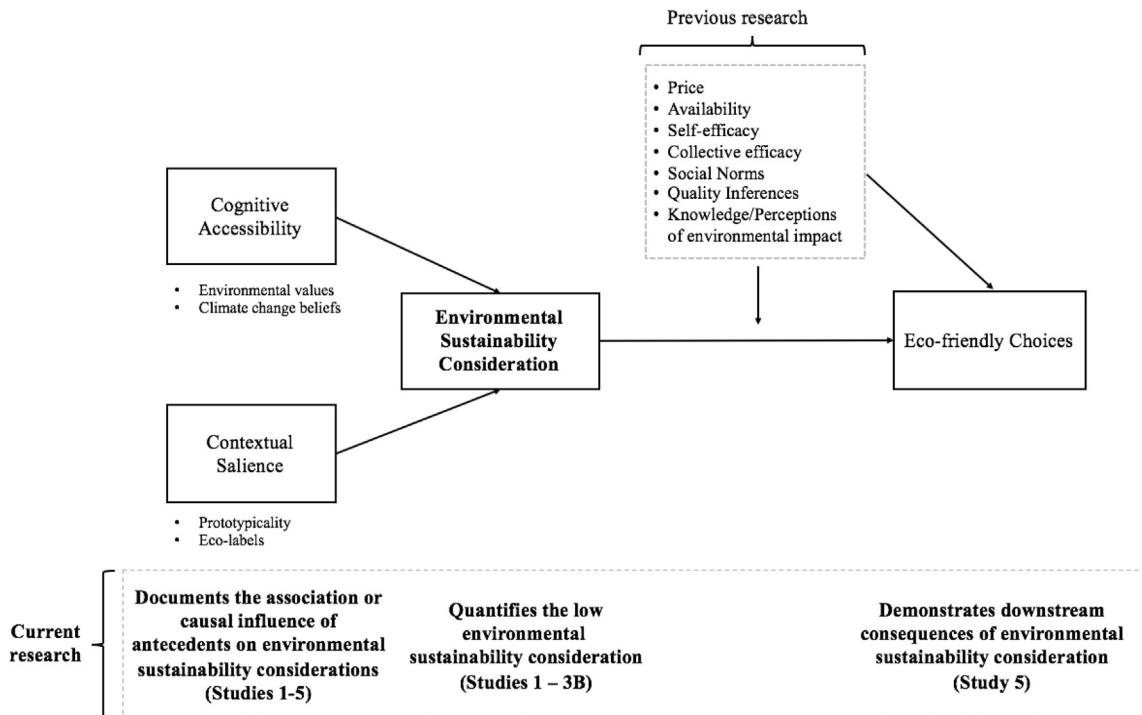
Fig. 1. Conceptual Model.

are more likely to enter the consideration set (Chandon et al., 2009). Likewise, less salient costs are more likely to be neglected (Frederick et al., 2009).

Environmental sustainability features may be particularly unnoticeable at the point of purchase. This is especially true compared to other core attributes, such as price, brand, or size, which are typically visible in the choice context. Eco-labels could help raise attention to environmental impact, but despite their increasing adoption over the past decade, implementation in the marketplace is still far from widespread (Iraldo et al., 2020; Taufique et al., 2022). Thus, relative to other familiar and prominent attributes, the product's environmental impact may not be prompted to mind as frequently as other, more contextually noticeable attributes.

2.1.2. Cognitive accessibility

Environmental sustainability consideration is not only a bottom-up process. Consumers often rely on memory and knowledge to search and make decisions (Lynch et al., 1991; Moorman et al, 2004). Accessibility refers to "the readiness with which each construct is utilized in information processing" (Higgins et al., 1982, p.36)—that is, the likelihood that the stored knowledge will be activated and used (Higgins, 1996). Since not all available information can be foremost in consumers' minds at once, the most accessible ones will be more influential in the decision-making process (Hedberg & Higgins, 2011).

Some attributes are more readily accessible in mind than others, and the relative accessibility of the attributes will help determine attribute consideration and use during evaluation and choice (Lynch et al., 1988). It is unlikely that environmental sustainability is readily accessible in consumers' minds compared to other mundane and familiar attributes. A product's environmental impact is a relatively new attribute to many, if not most, consumers, and this is particularly true when compared to more traditional attributes such as price, brand, or taste. Further, consumers often fail to incorporate elements that are extrinsic to the transaction when making purchase decisions. For example, when buying tobacco, smokers seem to hardly consider the negative consequences of their deteriorated health condition to public health systems or of second-hand smoking to others (for a review, see DeCicca et al., 2022). By the same token, the negative externalities to the environment produced by the purchase of unsustainable products might not be readily accessible in people's minds. Finally, and relatedly, the environmental consequences of unsustainable consumption are delayed, uncertain, and often perceptually disconnected from one's consumption decisions (Reczek et al., 2018).

Given this context, some traditional and core product features are likely to dominate. Think, for instance, of food, clothing, or cleaning products. It is likely that price and/or brand will be considered by a non-trivial portion of consumers, and so will taste (for food), fit (for clothing), and functional effectiveness (for cleaning products). Since consumers often rely on heuristics and consider a few attributes (Camerer & Loewenstein, 2004; Hoyer, 1984), it is plausible that environmental sustainability will rank low on the accessibility ladder.

2.2. Increasing environmental sustainability consideration

If the previous rationales hold, environmental sustainability considerations should increase among consumers for whom the sustainability attribute is more readily available in mind and in contexts where the sustainability attribute is more prominent in the purchase setting.

It is well documented that input accessibility is, in part, a function of people's motivations, which are directly impacted by their values, beliefs, and past experiences (Fishbach et al., 2006; Förster et al., 2005). People's long-lasting goals and what they consider to be important in life ultimately influence judgments and behaviors (Bouman et al., 2021; Kasser, 2016; Sagiv et al., 2017). Further, past and current experiences (e.g., food insecurity) make specific goals more readily accessible (e.g., satiety) and lead consumers to consider some attributes (e.g., fillingness) more than others (e.g., health; Andretti et al., 2024). In our context, it has been documented that consumers vary significantly on the extent to which they (a) value nature and the environment (De Groot, J., & Steg, 2008) and (b) believe in anthropogenic climate change and its urgency (Hornsey et al., 2016). If environmental values and climate change beliefs make environmental goals more cognitively accessible, it could be reflected in greater sustainability consideration. Thus, despite being overlooked by a large portion of consumers, sustainability considerations should be higher among those with stronger environmental values and climate change beliefs (Fig. 1).

The same reasoning applies to contextual salience. If the purchase environment presents consumers with sustainability cues, they become more likely to consider it. Contextual cues can come in multiple shapes and forms. A plausible yet implicit cue arises from the prototypicality of the inputs—that is, from how representative or associated the inputs are relative to a given category (Nedungadi & Wesley Hutchinson, 1985). For example, comparisons involving paper and plastic grocery bags arguably make environmental sustainability considerations rather salient, as these products are central in the sustainability debate (Jakovcevic et al., 2014) and have been the target of multiple policies worldwide (United Nations, 2018). Another plausible yet more explicit cue comes in the shape of environmental claims and labels. While much of the debate on the effectiveness of eco-labels centers around providing accurate and easily understandable information to consumers (Thøgersen et al., 2010; Van Amstel et al., 2008), it is possible that they also work through a complimentary route: by making the environmental sustainability attribute salient. Indeed, even if consumers know which product within a choice set is more sustainable, they may not spontaneously consider this attribute in their decision-making. By bringing sustainability to the forefront, eco-labels may prompt sustainability even in the absence of information provision. Thus, environmental sustainability considerations may increase when sustainability cues are made more implicitly or explicitly salient (Fig. 1).

3. The current research: overview of the studies

In a series of six studies conducted in three countries with varying levels of environmental performance (i.e., Brazil, the United Kingdom, and the United States; Wolf et al., 2022), we systematically test the hypothesis that consumers overlook sustainability considerations in most of their purchase decisions of fast-moving consumer goods (FMCG). Studies 1 and 2 test the proposed phenomenon across different product categories and using different recall paradigms. These studies also provide correlational evidence for the role of accessibility in shaping sustainability considerations. Studies 3A and 3B use more realistic and incentive-compatible contexts. Study 3A relies on Brazilian consumers who just made purchases in brick-and-mortar stores, whereas study 3B examines a sample of online consumers that represent the US and UK populations in terms of age, gender, and race. Studies 4 and 5 replicate the previous results while also systematically investigating the role of salience. While study 4 assesses whether sustainability consideration increases among choice sets strongly (e.g., grocery bags) versus weakly (e.g., chocolate bars) associated with the sustainability concept, study 5 examines whether eco-labels can effectively prompt sustainability consideration and influence choice even in the absence of information provision. Our cross-country approach allows us to assess the robustness of our findings and explore cross-country differences. All the studies were preregistered. Fig. 1 summarizes our conceptual model and Table A1 in the Appendix summarizes the studies and main findings. Data and codes for all studies are available on OSF: https://osf.io/tjnmy/?view_only=1a7a6b139ea9487b910fea163c9b521e.

4. Study 1: Environmental sustainability consideration via free elicitation

Study 1 examines the extent to which consumers consider environmental sustainability in their purchase decisions using a free-elicitation recall paradigm (Hoyer, 1984; Steenkamp, 1997). Participants are asked to list, in an open-ended question, product attributes they take into consideration when purchasing products from several different categories. In addition, study 1 provides correlational evidence for the role of cognitive accessibility by assessing whether consumers with stronger (vs. weaker) environmental values and climate change beliefs are more likely to spontaneously consider a product's environmental impact when making purchase decisions.

4.1. Method

Participants. This study was preregistered on AsPredicted (https://aspredicted.org/W8G_MPJ). Participants were recruited online in Brazil (N=887), the United States (N=551), and the United Kingdom (N=581) through Facebook, Amazon Mechanical Turk (MTurk), and Prolific, respectively. Participants who responded incorrectly to an attention check or had duplicated IP addresses were excluded, which led to final samples of 675 participants in Brazil (M_{age} = 48.32, SD=13.68; 57.84 % female, 42.01 % male, 0.16 % other), 550 participants in the United States (M_{age} = 42.14, SD=12.59; 51.09 % female, 48.55 % male, 0.36 % other), and 549 participants in the United Kingdom (M_{age} = 40.49, SD=13.55; 49.91 % female, 49.54 % male, 0.55 % other). See Table W1 in Web Appendix A for descriptive statistics.

Procedure. To avoid fatigue, participants were randomly presented with five out of seven possible product categories: non-perishable foods, perishable foods, non-alcoholic everyday beverages, cleaning products, personal care products, clothing, and home appliances. Participants were then asked the following open-ended question: "For each of them, please write down the factors that you take into consideration when choosing a product within this product category." They were asked to list from 2 to 6 factors. Upon completion of this task, participants answered a series of sociodemographic questions, including age, gender, education, income, subjective SES, and political orientation. At the end, they completed measures assessing environmental values and climate change beliefs.

Biospheric Values. Participants indicated the extent to which these values are important for their life principles: "preventing pollution: protecting natural resources", "respecting the earth: harmony with other species," "unity with nature: fitting into nature," "protecting the environment: preserving nature" (1 = not at all, 7 = extremely important; α_{Brazil} = 0.89, α_{US}=.95, α_{UK}=.94; $\alpha_{overall}$ = 0.94; De Groot and Steg, 2008).

Climate Change Beliefs. Participants indicated the extent to which they agreed with the following statements: "climate change is a real and urgent threat to humanity," "human activity is the main cause of climate change," "consumers can help mitigate climate change by changing their own consumption behaviors and lifestyle" (1 = completely disagree, 7 = completely agree; α_{Brazil} = 0.83, α_{US}=.91, α_{UK}=.86; $\alpha_{Overall}$ = 0.88).

Data Coding. Two independent coders blind to the study hypothesis coded the attributes mentioned by the participants according to pre-defined criteria. Some attributes were specific to one or a few product categories (e.g., warranty, taste), whereas others applied to all product categories (e.g., price, brand, quality/efficacy, environmental impact). The complete coding instructions provided to the coders are available on OSF.

To assess attribute consideration, we created a dummy variable for each of the pre-defined attributes indicating whether the participant reported considering the respective attribute (1 = considered the attribute, 0 = otherwise). We were especially interested in environmental sustainability considerations. Coders were instructed to code as "environmental sustainability" not only the terms more obviously related to environmental impact (e.g., environmental impact, eco-friendliness, eco-rating, CO_2 emissions, recyclability) but also terms that have possible alternative connotations (e.g., organic, no animal protein, energy efficient, locally produced, natural; see coding instructions for details).

Participants reported considering, on average, 3.00 attributes (SD=1.23) per product category. In all three countries, coders reached a high level of agreement for the environmental sustainability attribute ($kappa_{brazil}$ = 0.86; $kappa_{us}$ = 0.95; $kappa_{uk}$ = 0.91), as well as for all the other attributes ($kappa_{brazil}$ = 0.89 to 1.00; $kappa_{us}$ = 0.93 to 1.00; $kappa_{uk}$ = 0.90 to 1.00). Disagreements were resolved by discussion and consensus.

4.2. Analyses

We preregistered that we would compare, in a logistic regression model, the environmental sustainability consideration rate with the average rate of consideration of the X most considered attributes, where X refers to the median number of attributes mentioned by the participants. This test would serve as the main test of the hypothesis. However, to conduct a more conservative and less discretionary test, we slightly deviate from the preregistration and report below analyses comparing environmental sustainability consideration to the average consideration of all the other coded attributes. The preregistered analysis is presented in Web Appendix A.

In the preregistration, we also anticipated exploratory analyses to probe the robustness of the phenomenon across countries and social groups. Finally, to provide evidence for the role of accessibility, we preregistered that we would investigate, in an exploratory manner, the effects of biospheric values and climate change beliefs on environmental sustainability considerations. These analyses are detailed below (for additional details and supplementary analyses, see Web Appendix A).

4.3. Results

Environmental Sustainability Considerations. Participants (*N*=1,774) indicated the factors they take into consideration when making purchase decisions in 5 categories. The broadly defined "environmental sustainability" factor was considered in only 9.72 % (N=862) of these participant-category instances (*N*=8,870). As a comparison, attributes like price (75.85 %), quality (38.12 %), and brand (27.84 %) had a much higher consideration rate.

Despite regional variations, the low sustainability consideration rate is evident across all countries (BR=4.27 %, US=11.56 %, UK=14.57 %; for details, see Fig. 2 and Table W3). Similar patterns are observed across product categories. Environmental sustainability was apparently neglected in most cases, with consideration rates ranging from 17.44 % for
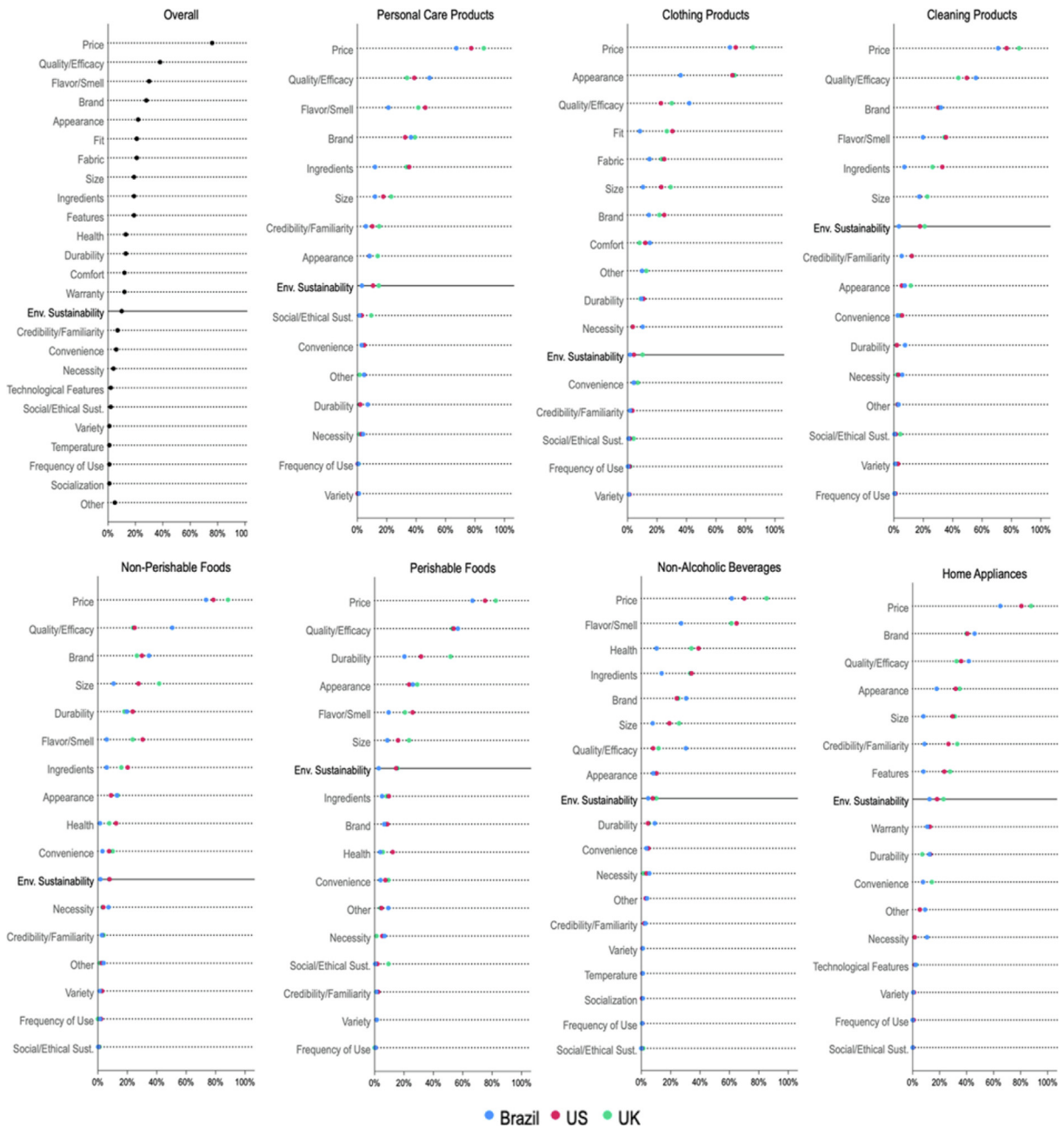
ARTICLE IN PRESS

L. Elmor, G.A. Ramos, Y. Vieites et al.   International Journal of Research in Marketing xxx (xxxx) xxx

Fig. 2. Attribute consideration across countries and product categories (Study 1). Notes: The figure presents attribute consideration by country and product category, along with a consolidated attribute consideration panel. Percentages were calculated by dividing the number of times a given attribute was considered by the total number of opportunities for that attribute to be considered. While attributes like price and quality were available across all product categories, attributes such as comfort and fabric were available in a few specific categories only. Attributes are listed in descending order of consideration per product category.

home appliances and 13.31 % for cleaning products to 5.41 % for non-perishable foods and 5.12 % for clothing items. Along similar lines, even though there were differences across people of different ages, educational levels, political ideologies, and races, environmental sustainability consideration rates were remarkably low across all subgroups (for details, see Table W6, Web Appendix A). For instance, politically liberal consumers reported considering sustainability (12.39 %) more often than moderate (8.33 %) and conservative consumers (6.96 %). However, even liberals rarely take sustainability into consideration.

Although it is clear from these descriptive analyses that environmental sustainability consideration is low, as a formal test of the hypothesis, we conducted a logistic regression model with attribute consideration as the dependent variable

(1 = considered, 0 = not considered) and a dummy indicating whether the attribute refers to environmental sustainability as the independent variable (1 = environmental sustainability, 0 = otherwise), with product category as control and clustered standard errors at the individual level. The results demonstrate that environmental sustainability consideration was low even compared to the average consideration of all the other mentioned attributes (b = -0.58, SE=.05, 95 % CI=[-0.69, −0.48], p < 0.001; see Fig. 2). Importantly, all the preregistered tests, including the exploratory ones related to the generalizability of the phenomenon across countries, product categories, and consumer subgroups, as well as the supplementary robustness checks, also confirm our hypothesis (Web Appendix A).

Biospheric Values and Climate Change Beliefs. To assess the role of cognitive accessibility on environmental sustainability consideration, we conducted an exploratory analysis examining the effects of biospheric values and climate change beliefs. If the lack of environmental sustainability consideration is in part due to weak cognitive accessibility of the construct, environmental considerations should increase among people with stronger environmental values and concerns. To test this possibility, we estimated separate logistic regression models with environmental sustainability consideration as the dependent variable (1 = considered sustainability, 0 = otherwise) and either biospheric values or climate change beliefs as the independent variable, as these measures were highly correlated (r = 0.62). In both models, we added age, gender, education, income, political ideology, race, subjective SES, product category, and country as control variables, and clustered the standard errors at the individual level. Consistent with a cognitive accessibility account, results revealed that stronger biospheric values were associated with increased sustainability consideration for all three countries combined (b = 0.72, SE=.08; 95 % CI= [.56, 0.88], p < 0.001; Table W7, Web Appendix A), and for each country separately (all ps < 0.001). Similar results were observed for climate change beliefs (combined sample: b = 0.54, SE=.08; 95 % CI=[.37, 0.70], p < 0.001; each country: all ps < 0.005; see Fig. 3 and Table W7, Web Appendix A). Remarkably, even among people who scored highest on biospheric values and climate change beliefs (i.e., 7 on *both* scales), environmental sustainability consideration was still quite low (12.10 %).

4.4. Discussion

Study 1 suggests that most consumers overlook environmental sustainability in their everyday purchases. Environmental consideration is low not only in absolute terms but also when compared to arguably more salient attributes (e.g., price, brand, quality). Although the magnitude of environmental sustainability neglect varies across different social groups, regions, and product categories, the phenomenon is rather prevalent across the three countries examined. Further, consistent with a cognitive accessibility account, consumers with stronger (vs. weaker) biospheric values and beliefs about anthropogenic climate change, who presumably hold stronger environmental goals, are more likely to spontaneously consider environmental sustainability in their purchase decisions.

The free elicitation method used to assess consideration presents at least two possible limitations. First, the consumer may not remember all the attributes they typically take into consideration when buying products from a certain product category. However plausible this argument might be, we contend that this should apply to all attributes unless some attributes are indeed more accessible than others. Second, and more critically, a given attribute mentioned by the participant may reflect different considerations. For instance, quality may reflect not only functional quality but also considerations about environmental sustainability. The same could be true for durability or even brand. As a result, sustainability considerations may be hidden into other, more frequently mentioned attributes. Note, however, that the same logic might apply to the opposite possibility—that other attributes are hidden in environmental sustainability (e.g., energy efficiency reflecting financial rather than sustainability considerations). The next study addresses these potential limitations.

5. Study 2: Environmental sustainability consideration via aided elicitation

Study 2 assesses the extent to which consumers overlook environmental sustainability considerations using an aided elicitation method (Morrin et al., 2011). Participants are presented with a predetermined list of attributes and asked to indicate those they take into consideration when making purchases. This approach minimizes the possibility that environmental sustainability is stored in consumers' minds but not easily retrievable (Higgins, 1996). It also mitigates the possibility that sustainability is "hidden" in other factors by explicitly presenting different options. For instance, if quality considerations reflect environmental motivations, the participant can simply select "environmental impact" instead of, or in addition to, quality.

5.1. Method

Participants. This study was preregistered on AsPredicted (https://aspredicted.org/F9C_8FY). Participants were recruited online in Brazil (*N*=546), the United States (*N*=576), and the United Kingdom (*N*=557) through Netquest, Amazon MTurk, and Prolific, respectively. Participants who responded incorrectly to an attention check or had duplicated IP addresses were excluded, which led to final samples of 508 participants in Brazil (M_{age} = 41.36, SD=13.13; 52.36 % female, 47.44 % male,.20 % other), 550 participants in the US (M_{age} = 40.71, SD=12.08; 46.36 % female, 53.27 % male,.36 % other), and 548 participants in the UK (M_{age} = 40.57, SD=14.06; 49.45 % female, 49.64 % male,.91 % other). See Table W8 in Web Appendix B for descriptive statistics.
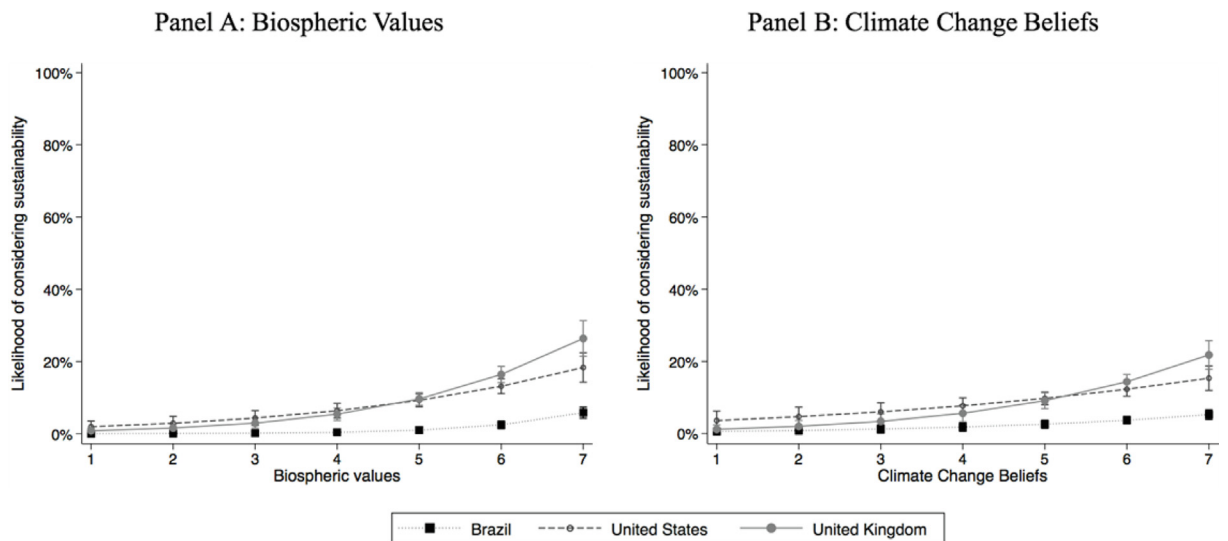
Fig. 3. Environmental Sustainability Consideration as a Function of Participants' Biospheric Values and Climate Change Beliefs (Study 1). Note. Predicted likelihood of considering sustainability as a function of biospheric values (panel A) and climate change beliefs (panel B). We computed interaction effects between country and each of the scales from models that included controls for age, gender, income, education, political ideology, and product category. Error bars denote 95% confidence intervals.

Procedure. As in study 1, participants were randomly presented with five of seven possible product categories (non-perishable foods, perishable foods, non-alcoholic everyday beverages, cleaning products, personal care products, clothing, and home appliances). For each category, participants were asked to select up to 5 factors they typically consider when buying products ($M_{N\_attributes}$ = 4.75; SD=.66) from a list of ten pre-selected factors plus an "other" option. While some attributes were displayed for all categories (e.g., environmental impact, brand, price), other attributes were specific to certain categories (e.g., flavor applied to food and beverages only). We labeled the key attribute "environmental impact" rather than "sustainability" because the latter also encompasses notions of social and economic sustainability (Norman & MacDonald, 2004). Our lexical choice also avoided technical jargon (e.g., carbon footprint) and expressions that were not smoothly translated to Portuguese (e.g., eco-friendly).

Upon completion of this task, participants completed the same sociodemographic questionnaire and measures of biospheric values and climate change beliefs used in study 1.

5.2. Analyses

We preregistered that we would compare environmental sustainability consideration rate with (i) an arbitrary 50 % rate and (ii) the average rate of consideration of the other attributes included as answer options. Following the suggestion of the review team to focus on less arbitrary comparisons, we focus on the latter analysis (but see the former in Web Appendix B). Further, we proceed similarly as in study 1 regarding the exploratory analyses probing robustness across product categories, countries, and social groups, and providing evidence for the role of accessibility (for additional details, see Web Appendix B).

5.3. Results

Environmental Impact Considerations. Participants (*N*=1,606) indicated the attributes they take into consideration when making purchase decisions across five categories. Even with an aided elicitation method, environmental impact was considered in only 21.31 % of the 8,030 participant-category instances. For comparison, environmental impact was the least considered attribute among the 18 attributes used in the study across product categories (see Fig. 4 and Table W9). Although differences across countries and platforms emerged, all three samples displayed rather low sustainability consideration rates (BR=17.56 %, US=22.69 %, UK=23.39 %; Fig. 4). Similar patterns are observed for product categories. Environmental sustainability was neglected in most cases, with consideration rates ranging from 35.13 % for cleaning products and 24.27 % for personal care items to 17.33 % for non-perishable foods and 16.78 % for clothing items. The low consideration of the product's environmental impact also replicates across different social groups, although some differences in age, subjective socioeconomic class, and political ideology emerged (Table W10). For instance, as in study 1, liberals considered environmental impact (25.94 %) at a higher rate than moderates (19.07 %) and conservatives (16.38 %). Nonetheless, sustainability consideration was low even among liberals.
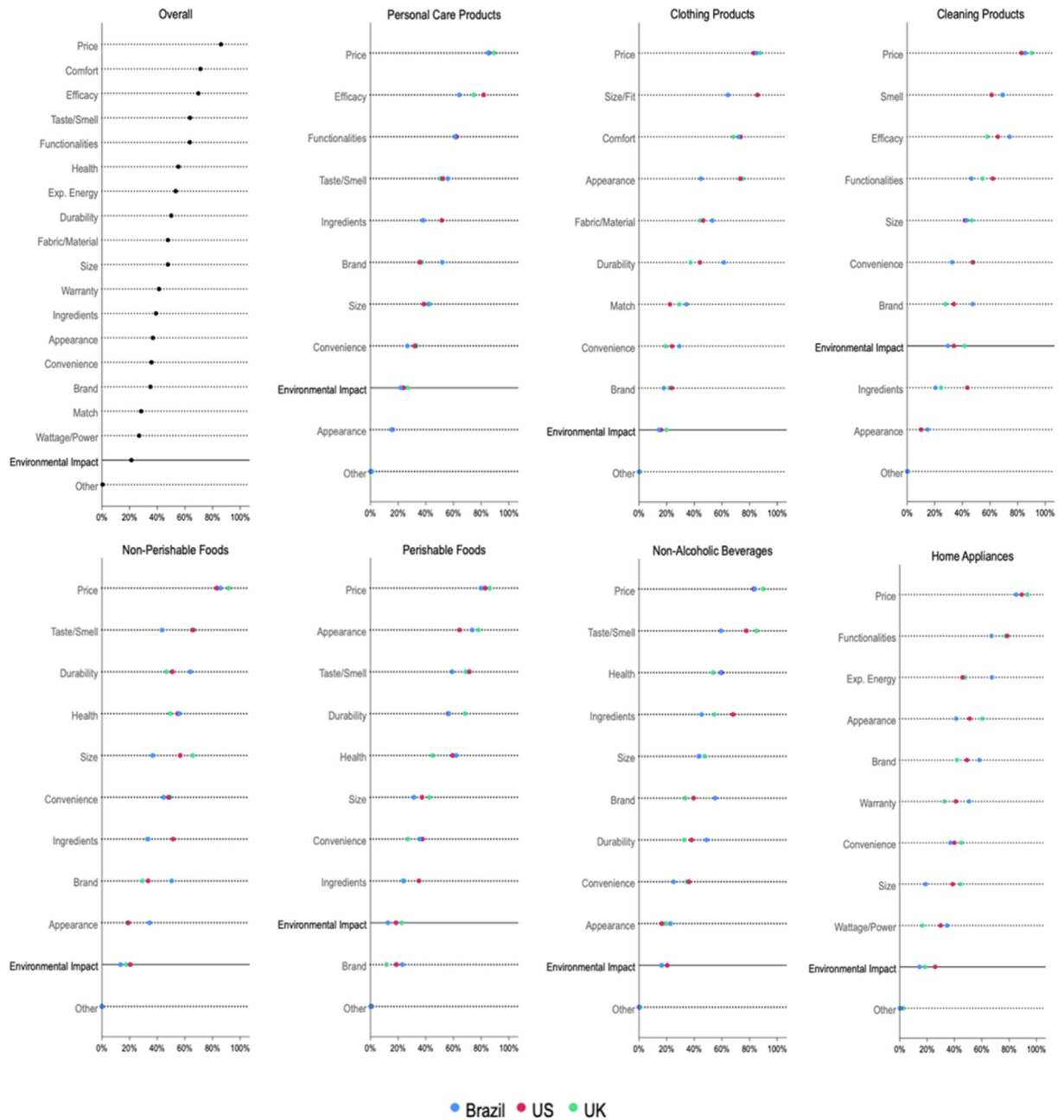
Fig. 4. Attribute consideration across countries and product categories (Study 2). Notes: The figure presents attribute consideration by country and product category, along with a consolidated attribute consideration panel. Percentages were calculated by dividing the number of times a given attribute was considered by the total number of opportunities for that attribute to be considered. While attributes like price and quality were available across all product categories, attributes such as comfort and fabric were available in a few specific categories only. Attributes are listed in descending order of consideration per product category.

As a formal test, we estimated a preregistered logistic regression model at the participant-category-attribute level (N=88,330) with attribute consideration as the dependent variable (1 = considered the attribute, 0 = otherwise), environmental impact as the main independent variable (1 = environmental impact, 0 = otherwise), and product category and attribute presentation order as controls. We clustered the standard errors at the individual level. Results confirmed that environmental impact was much less likely to be considered than the average of all the other attributes (b = -1.21, SE=.05; 95 % CI=[-1.31, −1.11], p < 0.001).

Biospheric Values and Climate Change Beliefs. Consistent with a cognitive accessibility account, results also revealed that stronger biospheric values were associated with increased sustainability consideration for all three countries (b = 0.90,

SE=.07; 95 % CI=[.76, 1.05], $p < 0.001$), and for each country separately ($ps < 0.001$). Similar results were observed for climate change beliefs (combined: $b = 0.61$, SE=.07; 95 % CI=[.47, 0.76], $p < 0.001$; each country: all $ps < 0.013$; see Fig. 5). As in study 1, despite the positive association between environmental sustainability consideration and biospheric values and climate change beliefs, the sustainability consideration rate was still low (35.98 %) even among those who scored highest on those values and beliefs (i.e., 7 on *both* scales).

5.4. Discussion

Study 2 replicates the findings from study 1 using an aided attribute elicitation method. Across different product categories and countries, participants overlooked environmental impact and did so more frequently than other attributes. Further, in line with a cognitive accessibility account, and as observed in study 1, consumers with stronger motives to act sustainably—i.e., those who hold stronger environmental values and climate change beliefs, for whom environmental considerations are presumably more accessible—were more likely to spontaneously consider environmental impact in their purchase decisions.

While studies 1 and 2 employ different elicitation methods to document the phenomenon, they have a few limitations. First, they were conducted outside the actual purchase context. Second, and relatedly, the studies relied on the participants' recall of their past purchases. Participants may have reported attributes that were more easily retrievable when completing the task instead of the ones they actually consider when making purchases. Third, the studies limited the number of attributes participants could choose, which may have prevented them from selecting others that may have crossed their minds but received lower weight in the decision-making process (e.g., environmental sustainability). Fourth, even though the samples were relatively large, they were not representative of their respective countries' populations. Studies 3A and 3B collectively address these limitations.

6. Study 3A: Environmental sustainability consideration at the point-of-purchase

Study 3A assesses attribute consideration at the point-of-purchase of brick-and-mortar consumption environments in Brazil. Participants are approached at the exit of commercial settings right after they make a purchase and are inquired about the attributes they considered when choosing among the different products. This context confers increased ecological validity, mitigates concerns related to attribute retrievability, and allows participants to report all the attributes that crossed their minds.

6.1. Method

Participants and procedure. This study was pre-registered on AsPredicted (https://aspredicted.org/Y3B_JHN). Research assistants blind to the study hypothesis approached consumers at the exit of several commercial settings in Rio de
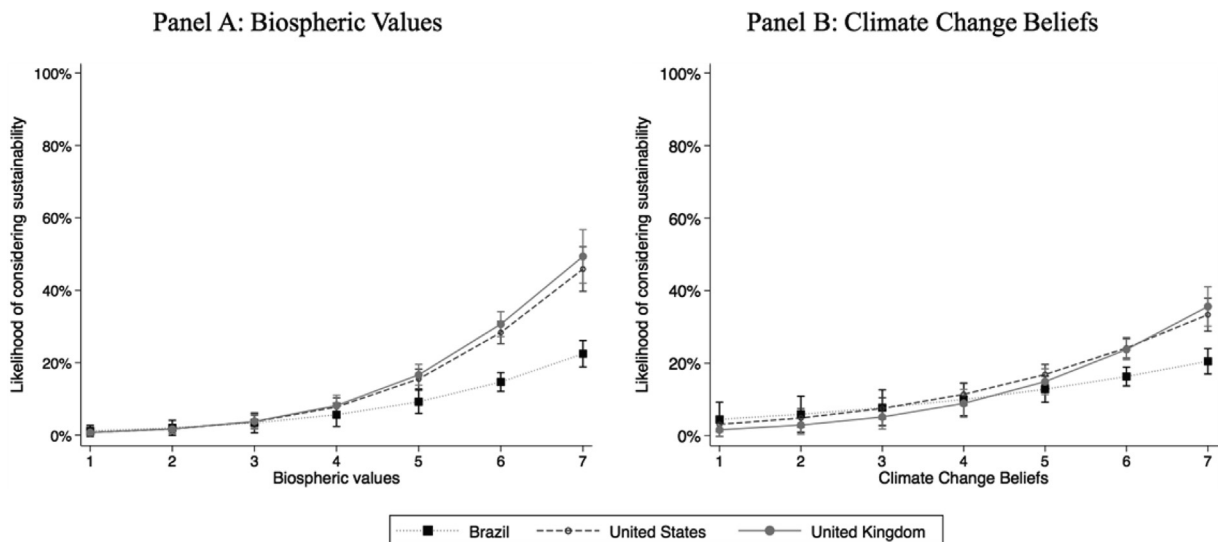

Fig. 5. Environmental Impact Consideration as a Function of Biospheric Values and Climate Change Beliefs (Study 2). Notes. Predicted likelihood of considering sustainability as a function of biospheric values (panel A) and climate change beliefs (panel B). We computed their interaction effects with country from models that included controls for age, gender, income, education, political ideology, and product category. Error bars indicate 95% confidence intervals.

Janeiro, Brazil, and asked whether they would be willing to participate in a short questionnaire. A total of 708 consumers (M_{age} = 38.62, *SD*=12.89; 61.58 % female, 38.14 % male, .28 % other gender) recruited outside four clothing stores (N=197), four supermarkets (N=313) or four home appliances stores (N=198) provided their consent. To recruit a reasonably varied sample, we selected commercial settings that varied in brand and geographic location within the city.

We examined attribute considerations across the same seven product categories as in the previous studies. Specifically, participants recruited outside supermarkets were asked whether they had bought at least one product from each of five product categories: perishable foods, non-perishable foods, non-alcoholic everyday beverages, cleaning products, and personal care products. Participants recruited outside clothing stores and home appliance stores, in turn, were asked whether they had bought at least one product from the respective category (i.e., clothing and home appliances). Next, those who reported having bought at least one item from a given category were asked to identify one product and, critically, to indicate which attributes they had taken into consideration (i.e., that had crossed their minds) when making that specific purchase. Half of the participants completed this task in an open-ended question (free elicitation method, as in study 1) while the research assistants categorized on the spot the reported attributes on a predefined list of 10 attributes (e.g., price, brand, environmental impact), plus an "other" option. The other half of the participants were presented with the same list of attributes and indicated the ones they had taken into consideration in their purchase (aided recall method, as in study 2). After this task, participants completed sociodemographic measures, were thanked, and dismissed.

6.2. Results and discussion

On average, the participants reported considering 2.50 attributes per category. Strikingly, out of the 708 consumers who had just made a purchase (*N*=1,366 individual-product category instances), only one single participant in one category reported considering environmental impact or any aspect directly related to the environmental sustainability motive (see Fig. W1, Web Appendix C).

Although in line with our reasoning and the fact that the Brazilian sample showed the lowest environmental sustainability consideration in the previous two studies, we were surprised that sustainability consideration in this study was virtually absent. One possible explanation for these results is that at least some consumers considered sustainability when selecting *where* to buy rather than *what* to buy within that specific setting–as there are stores particularly known for their commitment to environmental sustainability. Further, while we carefully chose a diverse set of commercial settings, consumers who shop in these environments are not necessarily representative of the Brazilian population. Finally, the number of attributes mentioned was relatively low (M=2.5), possibly because participants answered the survey in a hurry without giving much thought to their recently made purchase.

7. Study 3B: Environmental sustainability consideration with representative samples in an incentive-compatible online context

To address the concerns of the previous studies, Study 3B relies on an incentive-compatible online purchase setting with representative samples of the UK and US.

7.1. Method

Participants. This study was preregistered on AsPredicted (https://aspredicted.org/F9C_8FY). In contrast to the other studies, where country and recruitment platform are confounded, all participants in this study were recruited through Prolific. Importantly, we recruited representative samples of the US (*N*=555) and UK (*N*=553) populations in terms of age, gender, and race. As preregistered, participants who responded incorrectly to an attention check or had duplicated IP addresses were excluded, which led to final samples of 547 participants in the US (M_{age} = 46.81, *SD*=16.97; 49.82 % female, 49.08 % male, 1.10 % other), and 542 participants in the UK (M_{age} = 48.17, *SD*=17.65; 50.74 % female, 48.34 % male,.92 % other). See Table W11 in Web Appendix D for descriptive statistics.

Procedure. In a Qualtrics-based survey, participants were given a budget and asked to visit the Amazon website. Their task was first to (a) select the product(s) they would like to purchase within that budget, (b) copy and paste their selected product(s) to the Qualtrics survey, and (c) indicate the quantity and the product category of each of the selected products. More specifically, each participant received a US$50 (or £50) budget to choose up to 5 products on Amazon's website from one or more of the following categories: non-perishable foods, perishable foods, non-alcoholic everyday beverages, cleaning products, personal care products, electronics/home appliances. To make the task incentive-compatible, participants were informed that they would enter a lottery to potentially receive the selected product(s).

Upon completing this incentive-compatible purchase task, participants then proceeded to the attribute consideration assessment. For each of the selected products from a given product category, they were asked, from a list of 10 predefined attributes (plus an "other" option), which factors they considered when selecting that product. The displayed attributes were the same as the ones used in studies 2 and 3A (except for the category "electronics and home appliances"), and "environmental impact" was one of the options across all product categories. As in the previous studies, the selection of this attribute measures environmental sustainability consideration—our dependent variable.

Next, after completing the same sociodemographic questionnaire used in studies 1 and 2, participants completed a measure of injunctive environmental sustainability consideration. For each category participants chose products from, they were also asked to indicate what factors they believed consumers in general *should* consider when buying products from that category (i.e., their perceived injunctive norms). Finally, they completed measures of biospheric values and climate change beliefs.

7.2. Analyses

We preregistered that we would compare the environmental sustainability consideration rate with (i) an arbitrary 50 % rate, (ii) the average rate of consideration of the other attributes included as answer options, and (iii) participants' perceived injunctive norms. Following the suggestion of the review team to focus on less arbitrary comparisons, we report the last two analyses (see the former one in Web Appendix D). Further, we proceed similarly as in studies 1 and 2 regarding the exploratory analyses probing robustness across product categories, countries, and social groups, and providing evidence for accessibility (Web Appendix D).

7.3. Results

Environmental Impact Considerations. Environmental sustainability was considered in only 7.42 % of the intended purchases (N=183 out of 2,467). This low rate of environmental sustainability consideration was observed in both the US (7.23 %) and the UK (7.62 %; Table W12, Web Appendix D). As a comparison, the environmental impact consideration was lower than the consideration of 15 of the 17 other attributes used in the study, including price (64.41 %), brand (40.21 %), size (32.14 %), and convenience (29.31 %), to cite a few (see Fig. 6). Similar patterns are observed for product categories. Environmental sustainability was neglected in most cases, with consideration rates ranging from 14.64 % for cleaning products and 11.16 % for perishable foods to 4.83 % for non-perishable foods and 4.67 % for clothing items. The low environmental impact consideration also replicates across different social groups, although some differences related to age, education, and political ideology emerged (see Table W13, Web Appendix D). For instance, as in studies 1 and 2, liberals considered environmental impact (8.46 %) at a higher rate than moderates (7.16 %) and conservatives (5.55 %). However, sustainability consideration was low even among liberals.

To formally test the hypothesis, we again estimated a logistic regression model at the participant-category-attribute level (*N*=27,137) with attribute consideration as the dependent variable (1 = considered the attribute, 0 = otherwise), environmental impact as the main independent variable (1 = environmental impact, 0 = otherwise), and product category as control, and clustered the standard errors at the individual level. Results revealed that environmental impact was much less likely to be considered than the average of all the other attributes (*b* = -1.79, SE=.10; 95 % CI=[-1.98, −1.59], *p* < 0.001; see Fig. 6 and Table W12).

As preregistered, we also examined how the participants' actual environmental impact consideration compared to their subjective injunctive judgments–i.e., whether they believed consumers should consider this attribute when buying a product from that particular product category. We estimated a logistic regression model with environmental selection as the dependent variable and type of consideration (descriptive vs. injunctive) as the independent variable, with category as control and clustered standard errors at the individual level. Results revealed that actual environmental impact consideration was lower than injunctive consideration. Across product categories and countries, 38.14 % indicated that environmental sustainability should be considered, but only 7.42 % of them did so (*b* = -2.07, SE=.10, 95 % CI=[-2.27, −1.87], *p* < 0.001; for details, see Fig. W2 and Table W14, Web Appendix D). Thus, environmental sustainability neglect takes place irrespective of the comparison benchmark.

Biospheric Values and Climate Change Beliefs. Again, consistent with a cognitive accessibility account, both biospheric values and climate change beliefs were associated with increased sustainability consideration for the two countries combined (biospheric values: *b* = 0.91, SE=.13; 95 % CI=[.65, 0.1.17], *p* < 0.001; climate change beliefs: *b* = 0.59, SE=.16; 95 % CI=[.27, 0.92], *p* < 0.001), and for each country separately (*ps* < 0.017, Fig. W3, Web Appendix D).

7.4. Discussion

Using representative samples of the US and UK in an incentive-compatible online setting, Study 3B strongly supports the hypothesis that consumers overlooked environmental sustainability in most of their purchases. In addition, sustainability was considered to a lower extent than other attributes and even relative to consumers' own injunctive standards. This phenomenon is rather prevalent across countries and social groups, even though people with strong environmental values and beliefs–who presumably have environmental sustainability more cognitively accessible–are more likely to take it into consideration. The next two studies shed light on the role of salience.
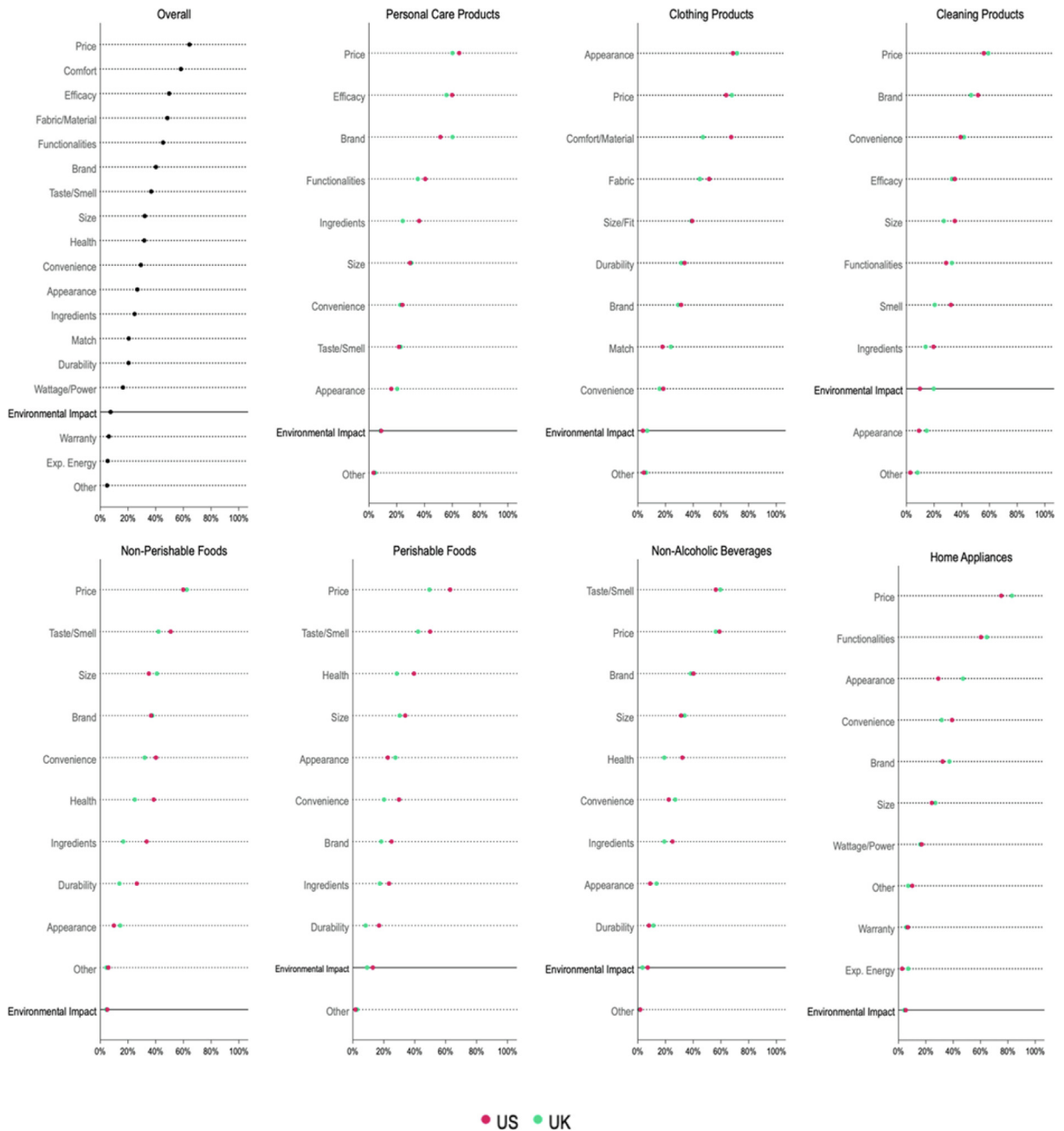
Fig. 6. Attribute consideration across countries and product categories (Study 3B). Notes: The figure presents attribute consideration by country and product category, along with a consolidated attribute consideration panel. Percentages were calculated by dividing the number of times a given attribute was considered by the total number of opportunities for that attribute to be considered. While attributes like price and quality were available across all product categories, attributes such as comfort and fabric were available in a few specific categories only. Attributes are listed in descending order of consideration per product category.

8. Study 4: Prototypicality as a sustainability prompt

Study 4 serves two main purposes. First, it replicates the phenomenon using an explicit choice scenario, where one option is clearly perceived as more sustainable than the other. Respondents are presented with a pair of products that vary in multiple dimensions, including environmental impact. They are then asked to indicate in an aided-elicitation task which attributes they would consider if facing the purchase scenario.

Second, this study tests a theory-driven boundary condition for environmental sustainability neglect. Per our theoretical arguments, consumers systematically overlook a product's environmental impact because this attribute is neither as salient in the decision context nor as readily accessible in their minds as other attributes. If this is the case, contextual cues that prompt environmental impact should make consumers more likely to consider it. One of these cues is the product's prototypicality. Prior research has shown that objects vary in how representative of a concept they are (Nedungadi & Hutchinson, 1985; Rosch, 1973) and that a product's prototypicality in a given domain (e.g., sustainability) makes related attributes more salient in people's minds (Nedungadi & Hutchinson, 1985). Thus, products that are traditionally the targets of sustainability policies and public debate—such as plastic bags or plastic cups (Sokolova et al., 2023)—should be particularly representative of the concept and, as a result, naturally prompt environmental sustainability considerations compared to the vast majority of products which are not as prototypical.

We predicted that sustainability consideration would be low when consumers evaluate products lower in prototypicality (e.g., chocolate wrapped in more vs. less packaging), but it would increase for products higher in prototypicality (e.g., plastic vs. paper bags), even if, in both cases, they have a clear perception about which is more sustainable.

8.1. Method

Participants. This study was preregistered on AsPredicted (https://aspredicted.org/499_F2H). Participants were recruited online in Brazil (*N*=452[2]), the United States (*N*=455), and the United Kingdom (*N*=456) through Netquest, Amazon MTurk, and Prolific. Following preregistered exclusion criteria, participants who did not respond correctly to an attention check, had duplicated IP addresses, failed to indicate an attribute considered in their decision, or failed to indicate which option they perceived as more sustainable were excluded prior to the analyses. The final samples consisted of 401 participants in Brazil (M_{age} = 47.3, *SD*=16.7; 50.1 % female, 49.9 % male, 0 % other), 453 participants in the United States (M_{age} = 42.2, *SD*=13.2; 61.1 % female, 37.8 % male, 1.1 % other), and 446 participants in the United Kingdom (M_{age} = 39.4, *SD*=13.1; 50.22 % female, 49.1 % male, 0.67 % other). See Table W16 in Web Appendix E for descriptive statistics.

Procedure. Upon providing their consent, participants were randomly assigned to one of four conditions: lower versus higher prototypicality, with two replicates each. In the lower prototypicality condition, participants evaluated either options of lettuce (in a plastic pack vs. unwrapped) or chocolate (wrapped in a single paper pack vs. multiple small plastic packs). In the higher prototypicality condition, participants were presented with either two options of grocery bags (paper vs. plastic) or two options of cups (plastic vs. reusable bamboo fiber). A pretest confirmed that participants clearly recognized bags and cups as more prototypical of the sustainability debate than chocolate and lettuce (see Table W15, Web Appendix E). As illustrated in Fig. 7, within each of the four pairs of products, the options varied in multiple dimensions (e.g., price, quantity), including perceived environmental sustainability.

After comparing the products, participants answered the following question: "Suppose you are grocery shopping and must decide which option to buy. Which of the factors listed below would you take into consideration when making the purchase choice? Please select only the factor(s) which would likely cross your mind when you are making this decision." A list of seven attributes was presented to the participants, who could choose as many as they wished. While the exact attributes varied across pairs of products, environmental impact/sustainability was a common attribute (Web Appendix E). The dependent measure was a dummy indicating whether they considered "environmental impact/sustainability.".

Next, participants were presented again with the same pair of products and indicated their perceptions of relative sustainability: "Which of the two options is more sustainable (that is, less harmful to the environment)?" In all cases, we expected most people to agree on which product of the pair they perceived as most sustainable/least harmful to the environment (i.e., paper bag, reusable cup, unwrapped lettuce, and single paper pack of chocolate). Critically, we expected sustainability considerations to be low in the lower prototypically condition (lettuce and chocolate)—a conceptual replication of the findings of the previous studies—but to increase in the higher prototypicality condition (grocery bags and cups).

Finally, participants completed the same sociodemographic questions, biospheric values, and climate change beliefs measures assessed in the previous studies.

8.2. Results

Sustainability Perceptions. As preregistered, we first assessed the assumption that most participants would accurately perceive the more sustainable option as such. Proportion tests for each pair of products comparing sustainability perception to 50 % revealed that this was indeed the case: 93.39 % of the participants indicated the paper bag as more sustainable than the plastic bag ($p < 0.001$), 97.21 % perceived the reusable bamboo fiber cup as more sustainable than the plastic cup ($p < 0.001$), 90.94 % chose the non-wrapped lettuce as more sustainable than the wrapped one ($p < 0.001$), and 88.00 % indicated the chocolate wrapped in a single paper pack as more sustainable than the chocolate wrapped in multiple small plastic packs ($p < 0.001$). Thus, irrespective of the prototypicality of the choice at hand, the overwhelming majority of consumers had convergent perceptions of the relative environmental impact of the products.

---

[2] Due to technical issues on the company's side, 98% of our initial sample was female. To correct this imbalance, we excluded half of these participants and recruited additional male observations (see Web Appendix E for analyses using the whole sample).

Sustainability Considerations. Critically, our preregistration also predicted sustainability considerations to remain low for lettuce and chocolate (lower prototypicality) but to significantly increase for bags and cups (higher prototypicality). To examine this hypothesis, we conducted a logistic regression analysis with sustainability consideration as the dependent variable and a dummy indicating the level of sustainability prototypicality of the assigned pair of products (1 = higher prototypicality, 0 = lower prototypicality) as the independent variable. We also controlled for sustainability perceptions (1 = accurate perception, 0 = inaccurate perception). Results demonstrated that the lack of sustainability consideration observed for products low in prototypicality (26.98 %) significantly increased for highly prototypical products (61.74 %; $b = 1.44$, $SE=.12$; 95 % CI=[1.20, 1.67], $p < 0.001$). The same pattern was observed in per-product analyses (see Fig. 8).

To examine the prevalence of the phenomenon across regions and platforms, we conducted exploratory country-specific logistic regression models with environmental sustainability consideration as the dependent variable, sustainability prototypicality as the independent variable, and sustainability perceptions as a control variable. Results revealed that, in all countries, most consumers neglected environmental sustainability for products lower in prototypicality. However, sustainability considerations significantly increased for the highly prototypical products (Brazil: 28.57 % vs. 64.88 %, $b = 1.49$, $SE = 0.22$; 95 % CI=[1.06, 1.91], $p < 0.001$; US: 19.47 % vs. 56.39 %, $b = 1.65$, $SE=.22$; 95 % CI=[1.22, 2.07], $p < 0.001$; UK: 33.18 % vs. 64.29 %, $b = 1.25$, $SE=.20$; 95 % CI=[0.86, 1.64], $p < 0.001$).

Again, consistent with a cognitive accessibility account and the previous findings, significant simple main effects of biospheric values ($b = 0.44$, $SE=.11$, 95 % CI=[.23, 0.66], $p < 0.001$) and climate change beliefs ($b = 0.36$, $SE=.12$, 95 % CI=[.13, 0.60], $p = 0.002$) emerged in the lower prototypicality condition. Interestingly, these effects were more pronounced for products high in prototypicality ($b_{biospheric\_values\ X\ prototypicality} = 0.36$, $SE=.15$, 95 % CI=[.06, 0.65], $p = 0.019$; $b_{climate\_beliefs\ X\ prototypicality} = 0.28$, $SE=.15$, 95 % CI=[-0.02, 0.58], $p = 0.067$).

8.3. Discussion

Study 4 makes two main additional contributions. First, it shows that the environmental sustainability attribute is largely overlooked even when consumers are presented with a pair of products in which one is noticeably more environmentally friendly than the other. Further and critically, this study documents an important theory-driven boundary condition. In the rarer occasions in which the products and choices are highly prototypical of the concept of sustainability, then environmental impact considerations become much more frequent.

9. Study 5: eco-labels as sustainability prompts

Study 5 builds on the previous studies in two ways. First, it examines the role of contextual salience by prompting (or not) participants to think of sustainability via the use of unrelated eco-labels prior to the main task. Second, this study investigates the downstream consequence of sustainability consideration: choice. We expected that even a contextually irrelevant cue (i.e., eco-labels with no information provision) would increase sustainability considerations and could, in turn, lead to more sustainable choices.

9.1. Method

Participants. This study was preregistered on AsPredicted (https://aspredicted.org/N3T_Q6X). Participants were recruited online in Brazil (*N*=533), the United States (*N*=509), and the United Kingdom (*N*=456) through Netquest, Amazon MTurk, and Prolific, respectively. Following preregistered exclusion criteria, participants who did not respond correctly to an attention check, had duplicated IP addresses, failed to complete the choice task, or failed to indicate an attribute considered in their decision were excluded prior to the analyses. The final samples consisted of 467 participants in Brazil ($M_{age} = 46.75$, SD=15.93; 77.73 % female, 22.27 % male,.00 % other), 500 participants in the United States ($M_{age} = 40.96$, SD=12.70; 55.00 % female, 44.00 % male, 1.00 % other), and 498 participants in the United Kingdom ($M_{age} = 40.21$, SD=13.04; 49.40 % female, 49.60 % male, 1.00 % other). See Table W17 in Web Appendix F for descriptive statistics.

Procedure. In a hypothetical setting, half of the participants were informed that they would take part in two unrelated studies. The first study was purportedly meant to assess people's preferences for eco-labels. They were shown three different types of eco-labels with different designs and asked to indicate which one they thought best displayed the information about the degree of environmental harm of products (see Web Appendix F for stimuli and instructions). The labels were purposefully not associated with any specific products. The other half of the participants assigned to the control condition did not complete this task and proceeded directly to the choice task.

In the choice task, all participants were presented with the following instructions: "Suppose you are grocery shopping and must decide which pack of biscuits to buy. Please compare the two options below [Fig. 9] and indicate which one you would choose.".

After being exposed to the pair of products, participants were asked which option they would choose and, subsequently, which factors they took into consideration when making the purchase choice. Participants indicated the factors considered on a list of eight attributes: price, environmental impact, health/self-control/avoid indulgence, convenience, product or

ARTICLE IN PRESS

L. Elmor, G.A. Ramos, Y. Vieites et al.   International Journal of Research in Marketing xxx (xxxx) xxx

Panel A: Higher Prototypicality Condition (bags and cups)

Option A	Option B	Option A	Option B
Product: Single plastic bag Quantity: 1 bag Price: $ 0.60 Capacity: 3 kg	Product: Single paper bag Quantity: 1 bag Price: $ 0.50 Capacity: 3.5 kg	Product: Reusable bamboo fiber cups Material: Bamboo fiber Quantity: 15 cups Price: $ 4.48 for all 15 cups	Product: Plastic cups Material: Plastic Quantity: 15 cups Price: $ 3.21 for all 15 cups

Panel B: Lower Prototypicality Condition (lettuce and chocolate)

Option A	Option B	Option A	Option B
Product: Single plastic pack of washed, shredded iceberg lettuce Quantity: 250g Price: $ 6.49 Lifespan: 7-10 days	Product: 1 whole, non-washed iceberg lettuce Quantity: 250g Price: $ 5.89 Lifespan: 3-5 days	Product: Dark chocolate wrapped in small plastic packs Price: $ 4.48 Quantity: 100g Expiration date: January 2024	Product: Dark chocolate bar wrapped in single paper pack Price: $ 4.09 Quantity: 100g Expiration date: November 2024

Fig. 7. Stimuli Used in Higher and Lower Prototypicality Conditions (Study 4).

package size, appearance of the product or packaging, expiration date, and other. There was no limit on the number of attributes they could select from the list (Mean = 2.13; Median = 2.00).

Finally, all participants completed the same sociodemographic questions and measures of biospheric values and climate change beliefs assessed in the previous studies.

9.2. Results

Sustainability Considerations. The results revealed that only 29.97 % of the participants in the control condition reported having taken environmental impact into consideration when making the choice. Critically, a preregistered logistic regression
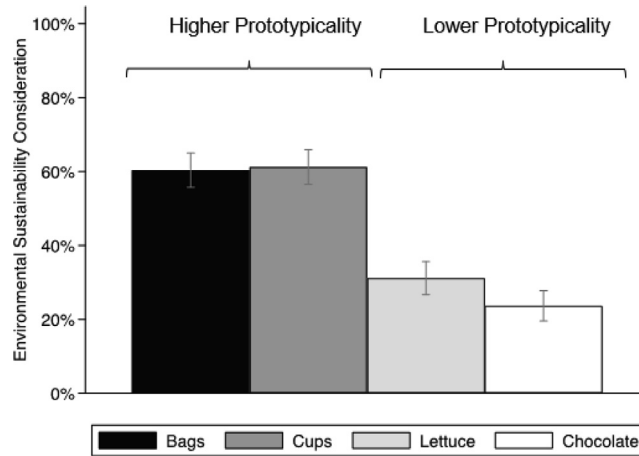
Fig. 8. Effect of Product Prototypicality on Sustainability/Environmental Impact Consideration (Study 4). Note. Error bars denote 95% confidence intervals.

Product: 2 plastic packs, each containing 10 smaller plastic packs of 2 biscuits Quantity: 40 biscuits Total Price (2 packs): $ 5.97 Brand: Lotus Biscoff Expiry date: January 2024	Product: Single plastic pack containing 40 biscuits in it Quantity: 40 biscuits Price: $ 5.63 Brand: Lotus Biscoff Expiry date: October 2023

Fig. 9. Pair of Products Used in Study 5.

model with environmental impact consideration (1 = considered, 0 = did not consider) as the dependent variable, the sustainability prompt manipulation (1 = exposed to the sustainability prompt [eco-label], 0 = not exposed to the sustainability prompt [control]) as the independent variable, and country fixed-effects revealed that the sustainability prompt significantly increased environmental impact consideration (39.53 %, $b = 0.43$, $SE=.11$, 95 % CI=[.21, 0.65], $p < 0.001$).

Choice. Our preregistration also anticipated assessing whether the sustainability prompt would lead to more sustainable choices. The same logistic regression model but with choice (1 = more sustainable, 0 = less sustainable) as the dependent variable showed that participants exposed to the sustainability prompt (i.e., ecological labels) chose the more sustainable option (68.13 %) more than participants who were not exposed to such prompts (59.13 %, $b = 0.40$, $SE = 0.11$, 95 % CI= [.18, 0.62], $p < 0.001$). A preregistered bootstrapped mediation analysis (1,000 replications) confirmed that eco-labels increased sustainable choices by inducing environmental impact considerations (*indirect effect* = 0.04, $SE=.01$, $p < 001$, 95 % CI=[.02, 0.06]; for details, see Fig. W4, Web Appendix F).

Generalizability across countries and platforms. To examine potential heterogeneous effects across countries, we conducted the same exploratory analyses as the preceding studies. The results revealed that, in the control condition, relative to the UK (46.37 %), consideration was lower in Brazil (17.65 %, $b = -1.23$, $SE=.24$, $p < 0.001$, 95 % CI=[-1.70, −0.76]) and the US (25.40 %, $b = -0.85$, $SE=.20$, $p < 0.001$, 95 % CI=[-1.24, −0.45]). Interestingly, the prompt increased sustainability considerations more strongly among participants from Brazil than US ($b = 0.57$, $SE=.31$, $p = 0.063$, 95 % CI=[-0.03, 1.17]), who in turn observed a stronger effect than participants in the UK ($b = -0.60$, $SE=.27$, $p = 0.028$, 95 % CI=[-1.14, −0.06]; see Fig. 10).
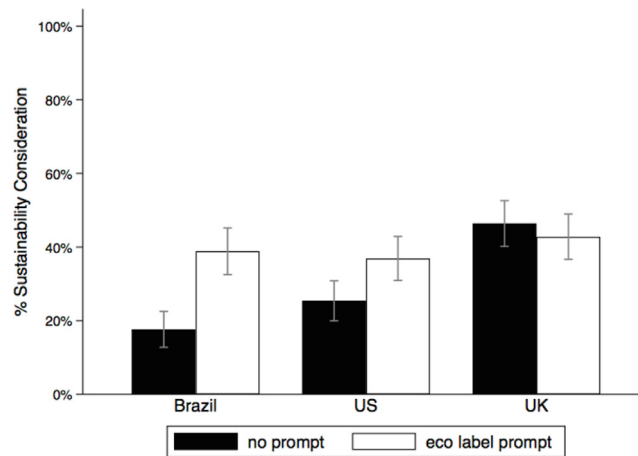
Fig. 10. Effect of Eco-Label Prompt on Sustainability Consideration Across Countries (Study 5). Note. Error bars indicate 95% confidence intervals.

We conducted similar exploratory analyses using choice as the dependent variable. While the eco-label prompt significantly increased choice for the sustainable product among participants in Brazil (b = 0.58, SE=.20, p = 0.003, 95 % CI=[.19, 0.98]), this effect was marginally significant for the US (b = 0.35, SE=.19, p = 0.071, 95 % CI=[-0.03, 0.73]) and non-significant for the UK (b = 0.23, SE=.21, p = 0.273, 95 % CI=[-0.18, 0.64]). In other words, Brazilian consumers considered sustainability less than US and UK consumers in the control condition but were the ones to "benefit" the most from the sustainability prompt.

The role of cognitive accessibility. As in the previous studies, the results of logistic regression analyses demonstrate that both biospheric values and climate change beliefs are associated with higher environmental impact considerations in the control condition ($b_{biospheric}$ = 0.52, SE=.10, p < 0.001, 95 % CI=[.32, 0.72]; $b_{climate\_beliefs}$ = 0.49, SE=.11, p < 0.001, 95 % CI= [.26, 0.71]). We investigated the potential heterogeneous effects of the manipulation across people with different levels of biospheric values and climate change beliefs. There was no interaction between the label prompt and neither biospheric values (b = 0.02, SE=.14, p = 0.889, 95 % CI=[-0.26, 0.30]) nor climate change beliefs (b = 0.09, SE=.15, p = 0.535, 95 % CI=[-0.20, 0.39]) on sustainability consideration. In the choice analysis, the effect was significant for climate change beliefs (b = 0.22, SE=.11, p = 0.051, 95 % CI=[-0.00, 0.45]), but not for biospheric values (b = 0.08, SE=.12, p = 0.482, 95 % CI=[-0.15, 0.31]).

9.3. Discussion

In addition to replicating the finding that most consumers overlook environmental sustainability consideration, study 5 provides additional evidence for the role of salience. Contextually irrelevant eco-labels increased sustainability considerations in purchase decisions, leading to more sustainable choices. That is, eco-labels may operate by not only providing information about the environmental impact of products but also by nudging consumers to consider sustainability. Unexpectedly, the impact of the manipulation was stronger among participants from Brazil, who have consistently displayed lower levels of sustainability considerations. Although exploratory, these findings are consistent with a cognitive accessibility account such that the effect of the prompt was strongest among those whose accessibility was the lowest and hence could benefit the most from the "extra help" of more salient sustainability cues.

10. General discussion

Understanding why consumers do not make more eco-friendly decisions has long puzzled marketing scholars. Although many explanations have been offered, we shed light on a yet uninvestigated account for this perennial puzzle. Across six studies conducted in three countries, we show that consumers overlook environmental sustainability in most of their purchase decisions of fast-moving consumer goods. This environmental sustainability neglect is pervasive, taking place across countries and population subgroups, and emerges irrespective of the benchmark used (i.e., whether environmental sustainability consideration is compared against a 50 % threshold, the consideration of other attributes, or one's own normative beliefs). The phenomenon is driven by both low cognitive accessibility and low contextual salience of the sustainability attribute. Consistent with our theoretical arguments, environmental sustainability consideration increases among consumers with strong environmental goals (i.e., high on biospheric values and climate change beliefs), for whom the sustainability attribute is arguably more accessible. It also increases when consumers evaluate products that prototypically represent the sustainability debate (e.g., plastic bags) or are prompted with sustainability cues (e.g., eco-labels), which make the sustainability concept more salient to consumers. Table 2 summarizes these key findings, as well as the main theoretical and practical implications and future research avenues.

Table 2
Summary.

Key Findings	Theoretical Contributions	Practical Implications	Future Research Questions
– In contrast to what many industry and government reports suggest, most consumers rarely explicitly consider environmental sustainability in their purchase decisions. – Consistent with an accessibility mechanism, environmental sustainability consideration increases among consumers with strong environmental values and concerns. – Consistent with a salience mechanism, eco-labels can increase sustainability consideration, leading to more sustainable choices, even without any provision of information regarding the products' environmental performance.	– <u>Barriers to sustainable consumption</u>: We extend previous research by documenting another basic deterrent to sustainable consumption: environmental sustainability consideration (or lack thereof). – <u>Attribute neglect</u>: We add to this literature by showing that consumers systematically fail to consider environmental sustainability when deciding what to buy. – <u>Eco-labels</u>: While past work has examined how to best present information to improve knowledge about the products' sustainability score, we demonstrate that eco-labels may help promote sustainable consumption by not only increasing knowledge but also serving as prompt to sustainability considerations.	– <u>E3 Framework:</u> Our findings suggest three complementary approaches to promote sustainability considerations: Educate (promote an appreciation of the need to protect the environment), Embed (insert sustainability into more accessible attributes such as price), and Evoke (display sustainability cues around the decision context). – <u>Measurement:</u> The measurement strategies of many industry reports likely inflate environmental sustainability consideration due to social desirability and attribute salience. Our measures address these limitations, offering insights for practitioners doing market research and schools educating future marketers. – <u>Market segmentation</u>: A small, but non-negligible number of environmentally concerned consumers systematically considers environmental impact, creating opportunities for market segmentation. – <u>Heterogeneity across categories:</u> Consumers are more likely to think of environmental impact when purchasing products from certain categories (e.g., cleaning products).	– While we provide preliminary support for the pillars composing the E3 framework, direct empirical tests validating it are warranted to help policymakers design more effective public policies. For example, to provide evidence for the effectiveness of embedding strategies, future work may investigate how capitalizing on valued product attributes may unconsciously lead to more sustainable options. – Our results suggest that firms could leverage accessibility and salience to promote environmental consideration. We emphasize the roles of eco-labels and product prototypicality. Future research might investigate other strategies to increase environmental sustainability consideration. – Although we have investigated accessibility and salience separately, future research could examine how they interact. For example, is the combination of implicit cues (e.g., emphasizing attributes related to sustainability) with explicit cues (e.g., eco-labels) especially powerful to boost eco-friendly consumption decisions?

10.1. Theoretical implications

Our findings have a number of theoretical implications. Existing literature has documented multiple barriers that prevent consumers from translating their eco-friendly attitudes into actual sustainable consumption such as higher prices and lower availability of sustainable options (Gleim et al., 2013), lack of proper knowledge to differentiate what is sustainable from what is not (Steenis et al., 2017), and negative inferences about the quality of sustainable products (Luchs et al., 2010). A common implicit assumption is that consumers consider the environmental sustainability attribute in their decisions—but end up not following suit with their thoughts when confronted with such non-trivial obstacles. By taking one step back and quantifying the extent to which consumers consider environmental sustainability in the first place, we show that most consumers simply overlook this attribute when making purchase decisions. The current research, thus, sheds light on a basic deterrent to sustainable consumption: environmental sustainability neglect. In doing so, we extend the range of neglect biases found in previous research. Consumers have been shown to overlook opportunity costs (Frederick et al., 2009), usage frequency (Goodman & Irmak, 2013; Mittelman et al., 2020), hedonic adaptation (Wang et al., 2009), future expenses (Berman et al., 2016), and product durability (Sun et al., 2021). We add to this body of research by showing that consumers systematically fail to consider environmental sustainability when deciding what to buy. This is critical because while the consideration of the attributes documented in previous research (e.g., opportunity costs) may help enhance individual well-being (e.g., choice of utility-maximizing alternatives), the collective consideration of environmental sustainability is paramount to effectively address the current climate crisis.

Finally, our findings offer a corollary contribution to research on ecological labels. Extant work has investigated (i) the effectiveness of different eco-label formats (Dessart et al, 2021; Thøgersen et al., 2010; Van Amstel et al., 2008), (ii) how the source behind the eco-label (e.g., private company vs. government) affects consumer evaluations and intentions (Banerjee & Solomon, 2003), and (iii) the role of consumer characteristics (Teisl et al., 2008). While this body of work has focused on how eco-labels improve knowledge about the products' environmental impact, we show that eco-labels may

promote sustainable consumption by not only increasing knowledge but also serving as a prompt to sustainability considerations.

10.2. Practical implications

If consumers overlook environmental sustainability when making purchase decisions, then relying on individual action against climate change is unlikely to be enough to reach emission reduction goals. Recognizing the overreliance on consumer actions, experts have recently advocated for system-level interventions that change the incentives and/or structure of consumer decisions (e.g., carbon taxes, banning of single-use plastics; Chater & Loewenstein 2023; Klebl & Jetten, 2023; Winterich et al., 2023). Our findings suggest complementary systemic approaches that can lead to higher sustainability considerations via three types of initiatives: *Educate, Embed, and Evoke* (E3). We argue that the joint application of this group of tactics is likely to bring sustainability to the forefront of consumers' decision process and potentially increase sustainable choices.

Educate. Sustainability considerations and choices are more prevalent among people who hold strong environmental values and climate change concerns—those for whom sustainability is arguably more cognitively salient. One plausible system-level strategy to further promote such values and concerns is education. Previous work has advocated for climate change education to foster knowledge about and engagement with adaptation efforts (Ledley et al., 2017; Rumore et al., 2016). Education may promote environmental values, increase awareness about the climate urgency, help consumers identify the most sustainable options, and instill the need to adopt sustainable actions swiftly. Education is, therefore, a logical strategy for managers and policymakers to use.

Embed. Education alone, however, is unlikely to bring environmental sustainability to the forefront of people's minds on a sufficiently large scale (Lasarov et al., 2019). Indeed, even among those with the strongest levels of environmental values and concerns, sustainability considerations were still below the 50 % threshold in our studies (see Figs. 2 and 4). This is partly because of a wide range of attributes that may be even more cognitively accessible (e.g., price, brand, appearance/design). However, environmental sustainability might still be reflected in people's choices even if it does not explicitly occur to consumers. In other words, it is possible to circumvent the sustainability neglect barrier by focusing on the attributes that consumers care about and happen to (or have the potential to) positively correlate with the sustainability attribute. Embedding environmental sustainability into other, more cognitively accessible attributes may thus be another way policymakers can encourage eco-friendly choices. For example, in our studies, price clearly represented a top-of-mind consideration, such that embedding sustainability into price seems a sounding proposition. That is precisely what governments do when they tax unsustainable or subsidize sustainable options. It also presents an opportunity for product categories that are sustainable and price competitive (e.g., reused or refurbished products). Note that the embedding tactic goes beyond price and can be applied to brand quality (e.g., Patagonia), health (e.g., organic food), and convenience (e.g., no traffic jams on the subway).

Evoke. Our findings also suggest that displaying sustainability cues—or reminders—near or within the decision context evokes environmental sustainability considerations (studies 4 and 5). People are more likely to consider sustainability when (i) choosing products that have become prototypical of the sustainability debate and (ii) products are displayed along with eco-labels. Thus, making salient the products that people more readily associate with environmental sustainability (e.g., placing second-hand products next to new ones on shelves or online stores) and increasing the adoption of standard eco-labels (e.g., EU attempt to adopt a Product Environmental Footprint label; European Parliamentary Research Service, 2023) may trigger sustainability considerations regardless of people's environmental values, and consequently, induce sustainable choices.

Along the same lines, it has been documented that environmental sustainability is often associated with gentleness (Luchs et al., 2010) and minimalism (Wilson & Bellezza, 2022). Thus, products with minimalist designs or packaging or a store ambiance that evokes minimalism and a general feeling of gentleness may make environmental sustainability more accessible in consumers' minds. Interestingly, combining such implicit cues with explicit cues (e.g., eco-labels) may be especially powerful in boosting eco-friendly decisions. Future research could explore these possibilities.

10.3. Methodological considerations

Firms often conduct market research to get insights into what consumers consider in their purchase decisions. Recently, given the need to address the climate crisis, firms and governments have become particularly interested in assessing environmental sustainability. As described previously, industry and governmental reports often indicate that consumers put significant weight on sustainability when making purchase decisions. For instance, in a recent survey across all countries of the European Union, participants were asked how important a product's environmental impact was when making a purchase decision. Almost three-quarters (73 %) indicated that this attribute was either "rather" or "very" important (European Commission, 2023). Similarly, in a survey conducted in the US, 42 % of the participants in 2022 said they "always/nearly always" consider environmental impacts when making a purchasing decision, and another 35 % indicated that they sometimes do so, totaling about 79 % of participants who report considering this attribute (Chafin et al., 2023). Most of these findings arise from surveys in which consumers are explicitly asked about the importance of sustainability in their daily purchases (for an exception, see Feber et al., 2020). It is likely that salience and social desirability biases are, at least in part, inflating consumers' reported concerns. Our methodological approach minimizes these methodological caveats, offers an arguably more accurate assessment of sustainability considerations, and, as such, could be used by organizations in their future attempts to measure attribute consideration.

Across our studies (studies 1, 2, 3A-B, plus the control conditions of studies 4 and 5), environmental sustainability consideration per participant-product category was low. It ranged from 0.1 % in the Brazilian sample in study 3A (when participants were leaving a store) to 29.97 % in the control condition of study 5 (when participants chose between two options, one more and one less sustainable, and were then asked to indicate the attributes they considered from a list of 7 attribute options). Given that methodological variations can produce non-trivial changes in consumer reporting of attribute consideration, we recommend, whenever possible, the use of multiple measurements (free and aided elicitation, with immediate and delayed recall) in diverse consumer decision contexts (hypothetical, real, and incentive-compatible). Finally, to the extent that market research is a key activity performed by marketing managers, these methodological issues are also useful topics of discussion in business schools where future marketing managers are trained.

10.4. Why Bother?

If most consumers overlook environmental sustainability in their purchase decisions, why should firms then strive to offer sustainable products? Over and above the obvious climate emergency and the increased governmental regulations, which are forcing companies to internalize the negative environmental externalities of their activities, there are at least two complementary consumer-related reasons worth noting. First, albeit not the majority, certain segments care about environmental sustainability and are more likely to consider it, especially if prompted, which creates opportunities for market segmentation. Take people who score highest on environmental values in the UK, for example. About 27 % of these respondents freely recalled sustainability considerations (Study 1), which rose to 59 % when attributes were listed (Study 2). These consumers represent about 12 % of the population in that country (according to data from Study 3B). Moreover, highly environmentally conscious people tend to be particularly vocal about the sustainability cause, especially on social media. Thus, appealing to this consumer segment may also bring brand equity benefits that go beyond sheer immediate sales.

Our findings also show that some sociodemographic groups are more likely than others to spontaneously consider environmental sustainability in their purchase decisions. To better understand this phenomenon, we conducted an internal meta-analysis considering the results of studies 1, 2, 3B, and the control conditions of studies 4 and 5 (see Web Appendix G). Consistent with previous findings (Ehret et al., 2018; Piao & Managi, 2023), we found that environmental impact consideration is higher among more educated (b = 0.106, p < 0.001) and politically liberal (b = -0.297, p < 0.001) individuals. Interestingly, although older people are often portrayed as being less concerned with the environment than their younger counterparts (Petro, 2021), we found that environmental sustainability consideration actually increased with age (b = 0.136, p < 0.001). This result is consistent with a recent industry report (Husson & Kodali, 2023). No significant differences were observed for gender and subjective social class (Fig. W6 and W11, Web Appendix G). Importantly, we did not find an effect of income (Fig. W7, Web Appendix G), which is concerning given that sustainable actions from high-income individuals are particularly important in addressing the climate crisis (Andretti et al., 2024).

Along the same lines, not all product categories are created equal. Although consideration was low in general, consumers were about twice as prone to think of environmental impact when purchasing cleaning products (22.77 %; average of studies 1, 2 and 3B) than when purchasing beverages (11.73 %; see Figs. 2, 4, and 6 for details), which suggests that, for certain products, environmental sustainability may play a non-trivial role. An interesting question is what mechanisms might explain this cross-category heterogeneity. One possibility consistent with our theorizing is that the environmental consequences of consumption are more tangible for certain categories than for others, which influences the extent to which sustainability is accessible during the decision-making process. When applying cleaning products, consumers may experience firsthand the damage that such products may cause to humans via intoxication, harm to the skin, and the physiological impact that inhaling such strong smells may cause. All of these consequences may contribute to the idea that the chemicals present in cleaning products have palpable detrimental effects for human life and nature more broadly. For beverages, on the other hand, there is no such sensory element to make sustainability tangible. Future research could examine whether this variation across categories in the tangibility of the environmental consequences of consumption might explain differences in sustainability accessibility and, as a result, consideration.

Another reason why firms should strive to offer sustainable products is that consumer preferences are likely to shift along with the felt changes to the climate. Extreme events are becoming more frequent and intense, and this tendency is predicted to worsen in the near future (Lee et al., 2023). As more consumers personally experience such events or see their coverage on the media—a trend that has been taking place over the recent past—the accessibility of environmental sustainability is likely to increase, and with heightened accessibility, environmental sustainability considerations would follow suit. This claim is supported by evidence that climatic events influence judgment and decision-making. For example, individuals who have experienced the consequences of climate change express stronger environmental attitudes and concerns (Bergquist & Warshaw, 2019), are more willing to support climate action (Spence et al., 2012), and vote for green parties and policies (Hazlett & Mildenberger, 2020; Hoffmann et al., 2022). Similar effects might be observed for environmental sustainability considerations in purchase decisions.

10.5. Conclusion

In a warming world castigated by extreme natural events, fully understanding what prevents consumers from adopting more sustainable behaviors is paramount. While previous research has proposed several obstacles consumers often face, the

current work shows that most consumers do not even think of sustainability when making purchase decisions. Typically, sustainability is neither easily accessible in consumers' minds nor contextually salient in the purchase environment, rendering environmental sustainability considerations unlikely to emerge. Encouragingly, as discussed in this paper, multiple initiatives can be pursued to (a) accurately assess when, why, and for whom sustainability neglect is more likely to happen and (b) promote consideration and, ultimately, sustainable consumption.

CRediT authorship contribution statement

Larissa Elmor: Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Guilherme A. Ramos:** Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Yan Vieites:** Writing – review & editing, Supervision, Project administration, Conceptualization. **Bernardo Andretti:** Writing – review & editing, Methodology, Formal analysis, Data curation, Conceptualization. **Eduardo B. Andrade:** Writing – review & editing, Supervision, Resources, Project administration, Conceptualization.

Data availability

As reported in the manuscript, all data and code for our studies can be found on the following link on OSF: https://osf.io/tjnmy/?view_only=1a7a6b139ea9487b910fea163c9b521e.

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.

Appendix A

Table A1

Overview of the Studies.

Study	Sample	Design	Dependent Variable	Main Findings
1	1,774 online participants from Brazil (675), US (550), and UK (549)	Survey	– Environmental Sustainability Consideration via Free-Elicitation Method	– Across product categories, social groups, and countries, environmental sustainability was considered in only 9.72 % of consumer-category instances. – Environmental sustainability consideration was higher among consumers with stronger environmental values and climate change beliefs.
2	1,606 online participants from Brazil (508), US (550), and UK (548)	Survey	– Environmental Sustainability Consideration via Aided-Elicitation Method	– Across product categories, social groups, and countries, environmental sustainability was considered in only 22.31 % of consumer-category instances. – Environmental sustainability consideration was higher among consumers with stronger environmental values and climate change beliefs.
3A	708 consumers from Brazil recruited in brick-and-mortar clothing	Survey	– Environmental Sustainability Consideration via Free-	– Only one participant reported considering environmental sustainability.

Table A1 (continued)

Study	Sample	Design	Dependent Variable	Main Findings
	stores (N=197), four supermarkets (N=313) and four home appliances stores (N=198)		Elicitation and Aided-Elicitation Methods (randomly assigned)	
3B	Representative sample of 1,089 online participants from US (547) and UK (542)	Survey	– Environmental Sustainability Consideration via Aided-Elicitation Method	– Across product categories, social groups, and countries, environmental sustainability was considered in only 7.42 % of the intended purchases. Sustainability consideration was also lower than (a) the consideration of other attributes and (b) people's injunctive norms (i.e., whether consumers should consider this attribute). – Environmental sustainability consideration was higher among consumers with stronger environmental values and climate change beliefs.
4	1,300 online participants from Brazil (401), US (453), and UK (446)	Single factor, between-subjects (sustainability prototypicality: high vs. low), with two replicates per condition	– Environmental Sustainability Consideration via Aided-Elicitation Method	– Environmental sustainability consideration was on average low (26.68 %) for products weakly associated with sustainability. It significantly increased (61.74 %) for products strongly associated with the environmental agenda. – This effect emerges even though most consumers agreed about which products were more sustainable.
5	1,411 online participants from Brazil (467), US (498), and UK (446)	Single factor, between-subjects (prompt: control vs. eco-label)	– Environmental Sustainability Consideration via Aided-Elicitation Method – Hypothetical Product Choice	– Environmental sustainability consideration was on average low in the control condition (29.97 %). Eco-labels increased sustainability considerations in purchase decisions (39.53 %), which in turn led to more sustainable choices.

Appendix B. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijresmar.2024.08.003.

References

Accenture. (2019). *More than Half of Consumers Would Pay More for Sustainable Products Designed to Be Reused or Recycled*. Accenture Survey Finds.

Andretti, B., Vieites, Y., Elmor, L., & Andrade, E.B. (2024), "How Socioeconomic Status Shapes Food Preferences and Perceptions", working paper.

Andretti, B., Vieites, Y., Ramos, G. A., Elmor, L., & Andrade, E. B. (2024). Underestimations of the income-based ecological footprint inequality. *Climatic Change, 177*, 66.

Banerjee, A., & Solomon, B. D. (2003). Eco-labeling for energy efficiency and sustainability: A meta-evaluation of US programs. *Energy Policy.*.

Bergquist, P., & Warshaw, C. (2019). Does global warming increase public concern about climate change? *The Journal of Politics, 81*(2), 686–691.

Berman, J. Z., Tran, A. T. K., Lynch, J. G., & Zauberman, G. (2016). Expense neglect in forecasting personal finances. *Journal of Marketing Research, 53*(4), 535–550.

Bouman, T., Steg, L., & Perlaviciute, G. (2021). From values to climate action. *Current Opinion in Psychology, 42*, 102–107.

Camerer, C., & Loewenstein, G. (2004). Behavioral economics: past, present, future. In *Advances in Behavioral Economics* (pp. 3–51). New York, NY, US: Russel Sage Foundation.

Carrington, M. J., Neville, B. A., & Whitwell, G. J. (2014). Lost in translation: Exploring the ethical consumer intention–behavior gap. *Journal of Business Research, 67*(1), 2759–2767.

Cerri, J., Thøgersen, J., & Testa, F. (2019). Social desirability and sustainable food research: A systematic literature review. *Food Quality and Preference, 71*, 136–140.

Chafin, C., Breuninger, M., Stewart, E., & Carlson, C. (2023). Four Scenarios for the Rapid Adoption of Climavorism. Kearney.

Chandon, P., Hutchinson, J. W., Bradlow, E. T., & Young, S. H. (2009). Does in-store marketing work? Effects of the number and position of shelf facings on brand attention and evaluation at the point of purchase. *Journal of Marketing, 73*(6), 1–17.

Chater, N., & Loewenstein, G. (2023). The i-frame and the s-frame: How focusing on individual-level solutions has led behavioral public policy astray. *Behavioral and Brain Sciences, 46*, e147.

Cheung, J., Nowak, C., Fillare, C., Orrell, G., Gonzalez-Wertz, C., & Peterson, S. (2022). *Balancing sustainability and profitability: How businesses can protect people, planet, and the bottom line.* IBM Institute for Business Value.

Cornelissen, G., Pandelaere, M., Warlop, L., & Dewitte, S. (2008). Positive cueing: Promoting sustainable consumer behavior by cueing common environmental behaviors as environmental. *International Journal of Research in Marketing, 25*(1), 46–55.

DeCicca, P., Kenkel, D., & Lovenheim, M. F. (2022). The economics of tobacco regulation: a comprehensive review. *Journal of Economic Literature, 60*(3), 883–970.

De Groot J., I., & Steg, L. (2008). Value orientations to explain beliefs related to environmental significant behavior: How to measure egoistic, altruistic, and biospheric value orientations. *Environment and Behavior, 40*(3), 330–354.

Dessart, F. J., Marandola, G., Hille, S., & Thøgersen, J. (2021). Comparing the impact of positive, negative, and graded sustainability labels on purchase decisions. *Policy Brief, European Commission.*

Dubois, G., Sovacool, B., Aall, C., Nilsson, M., Barbier, C., Herrmann, A., Bruyère, S., Andersson, C., Skold, B., Nadaud, F., Dorner, F., Moberg, K. R., Ceron, J. P., Fischer, H., Amelung, D., Baltruszewicz, M., Fischer, J., Benevise, F., Louis, V. R., & Sauerborn, R. (2019). It starts at home? Climate policies targeting household consumption and behavioral decisions are key to low-carbon futures. *Energy Research & Social Science, 52*, 144–158.

Eckhardt, G. M., Belk, R., & Devinney, T. M. (2010). Why don't consumers consume ethically? *Journal of Consumer Behaviour, 9*(6), 426–436.

Ehret, P. J., Van Boven, L., & Sherman, D. K. (2018). Partisan barriers to bipartisanship: Understanding climate policy polarization. *Social Psychological and Personality Science, 9*(3), 308–318.

European Commision. (2023). In *Flash Eurobarometer 535: The EU Ecolabel.* Publications Office of the European Union.

European Parliamentary Research Service (2023). Establishing a horizontal European climate label for products.

Faure, C., & Natter, M. (2010). New metrics for evaluating preference maps. *International Journal of Research in Marketing, 27*(3), 261–270.

Feber, D., Granskog, A., Lingqvist, O., & Nordigården, D. (2020). Sustainability in packaging: Inside the minds of US consumers." McKinsey.

Fishbach, A., Dhar, R., & Zhang, Y. (2006). Subgoals as substitutes or complements: The role of goal accessibility. *Journal of Personality and Social Psychology, 91*(2), 232–242.

Förster, J., Liberman, N., & Tory Higgins, E. (2005). Accessibility from active and fulfilled goals. *Journal of Experimental Social Psychology, 41*(3), 220–239.

Frederick, S., Novemsky, N., Wang, J., Dhar, R., & Nowlis, S. (2009). Opportunity Cost Neglect. *Journal of Consumer Research, 36*(4), 553–561.

Gleim, M. R., Smith, J. S., Andrews, D., & Cronin Jr., J. J. (2013). Against the green: A multi-method examination of the barriers to green consumption. *Journal of Retailing, 89*(1), 44–61.

Goodman, J. K., & Irmak, C. (2013). Having versus consuming: Failure to estimate usage frequency makes consumers prefer multifeature products. *Journal of Marketing Research.*

Grimmelt, A. Magni, M. & Rodriguez, A. (2020). McKinsey 2020 Global Consumer Sentiment Survey: A tale of two segments. McKinsey & Company.

Grubler, A., Wilson, C., Bento, N., Boza-Kiss, B., Krey, V., McCollum, D. L., Rao, N. D., Riahi, K., Rogelj, J., De Stercke, S., Cullen, J., Frank, S., Fricko, O., Guo, F., Gidden, M., Havlík, P., Huppmann, D., Kiesewetter, G., Rafaj, P., Schoepp, W., & Valin, H. (2018). A low energy demand scenario for meeting the 1.5 °C target and sustainable development goals without negative emission technologies. *Nature Energy, 3*(6), 515–527.

Hazlett, C. a., & Mildenberger, M. (2020). Wildfire exposure increases pro-environment voting within democratic but not republican areas. *American Political Science Review, 114*(4), 1359–1365.

Hedberg, P. H., & Higgins, E. T. (2011). What remains on your mind after you are done?: Flexible regulation of knowledge accessibility. *Journal of Experimental Social Psychology, 47*(5), 882–890.

Higgins, E. (1996). *Knowledge Applicability, Activation: Accessibility, and Salience. Social Psychology: Handbook of Basic Principles.* New York, NY, US: The Guilford Press.

Higgins, E. T., King, G. A., & Mavin, G. H. (1982). Individual construct accessibility and subjective impressions and recall. *Journal of Personality and Social Psychology, 43*(1), 35–47.

Hoffmann, R., Muttarak, R., Peisker, J., & Stanig, P. (2022). Climate change experiences raise environmental concerns and promote Green voting. *Nature Climate Change, 12*(2), 148–155.

Hornsey, M. J., Harris, E. A., Bain, P. G., & Fielding, K. S. (2016). Meta-analyses of the determinants and outcomes of belief in climate change. *Nature Climate Change, 6*(6), 622–666.

Hoyer, W. D. (1984). An examination of consumer decision making for a common repeat purchase product. *Journal of Consumer Research, 11*(3), 822–889.

Husson, T. & Kodali, S. (2023). Forrester's Green Consumer Segmentation, 2023. Forrester.

Iraldo, F., Griesshammer, R., & Kahlenborn, W. (2020). The future of ecolabels. *The International Journal of Life Cycle Assessment, 25*(5), 833–889.

Ivanova, D., Stadler, K., Steen-Olsen, K., Wood, R., Vita, G., Tukker, A., & Hertwich, E. G. (2016). Environmental impact assessment of household consumption. *Journal of Industrial Ecology, 20*(3), 526–536.

Jakovcevic, A., Steg, L., Mazzeo, N., Caballero, R., Franco, P., Putrino, N., & Favara, J. (2014). Charges for plastic bags: Motivational and behavioral effects. *Journal of Environmental Psychology, 40*, 372–380.

Johnstone, M.-L., & Tan, L. P. (2015). Exploring the gap between consumers' green rhetoric and purchasing behaviour. *Journal of Business Ethics, 132*(2), 311–328.

Kahneman, D., & Frederick, S. (2002). *Representativeness revisited: Attribute substitution in intuitive judgment. Heuristics and biases: The psychology of intuitive judgment.* New: Cambridge University Press.

Kaiser, F. G., Ranney, M., Hartig, T., & Bowler, P. A. (1999). Ecological behavior, environmental attitude, and feelings of responsibility for the environment. *European Psychologist, 4*(2), 59–74.

Kasser, T. (2016). Materialistic values and goals. *Annual Review of Psychology, 67*(1), 489–514.

Klebl, C., & Jetten, J. (2023). Perceived national wealth increases support for structural climate policies. *Journal of Environmental Psychology, 91* 102055.

Lasarov, W., Mai, R., Frutos, N. G. D., Egea, J. M. O., & Hoffmann, S. (2019). Counter-arguing as barriers to environmentally motivated consumption reduction: A multi-country study. *International Journal of Research in Marketing, 36*(2), 281–305.

Ledley, T. S., Rooney-Varga, J., & Niepold, F. (2017). Addressing climate change through education. In *Oxford Research Encyclopedia of Environmental Science.*

Lee, H., Calvin, K., Dasgupta, D., Krinner, G., Mukherji, A., Thorne, P., … Zommers, Z. (2023). *Climate change 2023: synthesis report. Contribution of working groups I, II and III to the sixth assessment report of the intergovernmental panel on climate change* (p. 184). Geneva, Switzerland: IPCC. http://dx.doi.org/10.59327/IPCC/AR6-9789291691647.

Lubell, M. (2002). Environmental Activism as Collective Action. *Environment and Behavior, 34*(4), 431–454.

Luchs, M. G., Naylor, R. W., Irwin, J. R., & Raghunathan, R. (2010). The Sustainability Liability: Potential Negative Effects of Ethicality on Product Preference. *Journal of Marketing, 74*(5), 18–31.

Lurie, N. H., & Mason, C. H. (2007). Visual representation: Implications for decision making. *Journal of Marketing, 71*(1), 160–177.

Lynch, J. G., Alba, J. W., & Hutchinson, J. W. (1991). *Memory and decision making. Handbook of consumer behavior.*

Lynch J.G. Marmorstein, H., & Weigold, M. F. (1988). Choices from sets including remembered brands: use of recalled attributes and prior overall evaluations. *Journal of Consumer Research, 15*(2), 169.

Mittelman, M., Gonçalves, D., & Andrade, E. B. (2020). Out of sight, out of mind: Usage frequency considerations in purchase decisions. *Journal of Consumer Psychology, 30*(4), 652–669.

Moorman, C., Diehl, K., Brinberg, D., & Kidwell, B. (2004). Subjective knowledge, search locations, and consumer choice. *Journal of Consumer Research, 31*(3), 673–680.

Morrin, M., Krishna, A., & Lwin, M. O. (2011). Is scent-enhanced memory immune to retroactive interference? *Journal of Consumer Psychology, 21*(3), 354–361.

Nedungadi, P., & Wesley Hutchinson, J. (1985). The prototypicality of brands: relationships with brand awareness preference and usage. *Advances in Consumer Research, 12*(1).

Norman, W., & MacDonald, C. (2004). Getting to the bottom of 'triple bottom line'. *Business Ethics Quarterly, 14*(2), 243–262.

Park, H. J., & Lin, L. M. (2020). Exploring attitude–behavior gap in sustainable consumption: Comparison of recycled and upcycled fashion products. *Journal of Business Research, 117*, 623–668.

Pennycook, G., Epstein, Z., Mosleh, M., Arechar, A. A., Eckles, D., & Rand, D. G. (2021). Shifting attention to accuracy can reduce misinformation online. *Nature, 592*(7855), 590–595.

Petro, Greg (2021), "Gen Z Is Emerging As The Sustainability Generation". Accessed on April 9 at: https://www.forbes.com/sites/gregpetro/2021/04/30/gen-z-is-emerging-as-the-sustainability-generation/

Piao, X., & Managi, S. (2023). The international role of education in sustainable lifestyles and economic development. *Scientific reports, 13*(1), 8733.

Reczek, R. W., Trudel, R., & White, K. (2018). Focusing on the forest or the trees: How abstract versus concrete construal level predicts responses to eco-friendly products. *Journal of Environmental Psychology, 57*, 87–98.

Rosch, E. (1973), "On the internal Structure of Perceptual and Semantic Categories," in Cognitive Development and the Acquisition *of Language*, New York, NY, US: Academic Press, 111–44.

Rumore, D., Schenk, T., & Susskind, L. (2016). Role-play simulations for climate change adaptation education and engagement. *Nature Climate Change, 6*(8), 745–750.

Sagiv, L., Roccas, S., Cieciuch, J., & Schwartz, S. (2017). Personal values in human life. *Nature Human Behaviour, 1*.

Sanbonmatsu, D. M., Kardes, F. R., Houghton, D. C., Ho, E. A., & Posavac, S. S. (2003). Overestimating the importance of the given information in multiattribute consumer judgment. *Journal of Consumer Psychology, 13*(3), 289–300.

Simon-Kucher & Partners (2021). Global Sustainability Study 2021: Consumers are key players for a sustainable future.

Skard, S., Jørgensen, S., & Pedersen, L. J. T. (2021). When is sustainability a liability, and when is it an asset? Quality inferences for core and peripheral attributes. *Journal of Business Ethics, 173*(1), 109–132.

Sokolova, T., Krishna, A., & Döring, T. (2023). Paper meets plastic: The perceived environmental friendliness of product packaging. *Journal of Consumer Research, 50*(3), 468–491.

Spence, A., Poortinga, W., & Pidgeon, N. (2012). The Psychological distance of climate change: psychological distance of climate change. *Risk Analysis, 32*(6), 957–972.

Steenis, N. D., Van Herpen, E., Van Der Lans, I. A., Ligthart, T. N., & Van Trijp, H. C. M. (2017). Consumer response to packaging design: The role of packaging materials and graphics in sustainability perceptions and product evaluations. *Journal of Cleaner Production, 162*, 286–298.

Steenkamp, J.-B. (1997). Attribute elicitation in marketing research: A comparison of three procedures. *Marketing Letters, 8*(2), 153–165.

Sun, J. J., Bellezza, S., & Paharia, N. (2021). Buy less, buy luxury: Understanding and overcoming product durability neglect for sustainable consumption. *Journal of Marketing, 85*(3), 28–43.

Taufique, K. M. R., Nielsen, K. S., Dietz, T., Shwom, R., Stern, P. C., & Vandenbergh, M. P. (2022). Revisiting the promise of carbon labelling. *Nature Climate Change, 12*(2), 132–140.

Teisl, M. F., Rubin, J., & Noblet, C. L. (2008). Non-dirty dancing? Interactions between eco-labels and consumers. *Journal of Economic Psychology, 29*(2), 140–159.

Thøgersen, J., Haugaard, P., & Olesen, A. (2010). Consumer responses to ecolabels. *European Journal of Marketing, 44*(11/12), 1787–1810.

Trudel, R. (2019). Sustainable consumer behavior. *Consumer Psychology Review, 2*(1), 85–96.

Ungemach, C., Camilleri, A. R., Johnson, E. J., Larrick, R. P., & Weber, E. U. (2018). Translated attributes as choice architecture: Aligning objectives and choices through decision signposts. *Management Science, 64*(5), 2445–2459.

United Nations (2018). *Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations*. United Nations Environment Programme.

United Nations (2022). Climate change the greatest threat the world has ever faced, UN expert warns.Available at: https://www.ohchr.org/en/press-releases/2022/10/climate-change-greatest-threat-world-has-ever-faced-un-expert-warns

United Nations (2023). Global Humanitarian Overview 2023.

Van Amstel, M., Driessen, P., & Glasbergen, P. (2008). Eco-labeling and information asymmetry: A comparison of five eco-labels in the Netherlands. *Journal of Cleaner Production, 16*(3), 263–276.

Van Der Wal A.J. Van Horen, F., & Grinstein, A. (2018). Temporal myopia in sustainable behavior under uncertainty. *International Journal of Research in Marketing, 35*(3), 378–393.

Wang, J., Novemsky, N., & Dhar, R. (2009). Anticipating Adaptation to Products. *Journal of Consumer Research, 36*(2), 149–159.

White, K., Habib, R., & Hardisty, D. J. (2019). How to SHIFT consumer behaviors to be more sustainable: A literature review and guiding framework. *Journal of Marketing, 83*(3), 22–49.

Wilson, A. V., & Bellezza, S. (2022). Consumer minimalism. *Journal of Consumer Research, 48*(5), 796–816.

Winterich, K. P., Reczek, R. W., & Makov, T. (2023). How lack of knowledge on emissions and psychological biases deter consumers from taking effective action to mitigate climate change. *Journal of the Academy of Marketing Science*, 1–20.

Wolf, M. J., Emerson, J. W., Etsy, D. C., Sherbinin, A., Wendling, Z. A., et al (2022). *Environmental Performance Index 2022*. New Haven, CT: Yale Center for Environmental Law and Policy.

Zhang, J., Sheng, S., & Xu, X. (2023). How perceived life control shapes sustainable consumption: The role of outcome efficacy. *Psychology & Marketing*.