

Building brand emotional connections with eco-efficient packaging: Exploring the role of utilitarian, symbolic, and hedonic benefits

Research Article

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Abstract: Growing environmental concerns have triggered the appearance of a growing number of eco-efficient goods. However, although there are several studies on consumer attitudes towards packaging design elements, research evaluating the effect of sustainable packaging on consumer decisions is relatively scarce. Therefore, the purpose of this research is to investigate how a brand's implementation of eco-efficient packaging influences consumer behaviour. We examine how a brand's strategic implementation of an eco-efficient packaging influences brand emotional attachment through consumer's perceptions of utilitarian, symbolic, and hedonic benefits, and its ultimate effect on purchase intention. Partial least squares structural equation modelling was used to test the hypotheses. Based on a sample of 305 respondents, it was found that the utilitarian benefits perceived by consumers do not positively influence brand emotional attachment. On the contrary, results show the existence of a positive influence between the symbolic and hedonic benefits perceived by consumers and brand emotional attachment, as well as between brand emotional attachment and consumer purchase intention of products with eco-efficient packaging.

Keywords: *Eco-efficient packaging • Utilitarian • Symbolic and hedonic benefits • Brand emotional attachment • Purchase intention*

1. Introduction

Packaging waste is a serious environmental problem. The US Environmental Protection Agency reports that more than 80 million tons of packaging were produced in 2018, two-thirds of which was made of plastic or paper. When packaging is no longer used, some of it is recycled, but much of it ends up in landfills (Sokolova et al., 2023). In addition, it is estimated that around 90 million tons of plastic waste enter the oceans every year from coastal regions (Howard et al., 2018). As a cost-effective packaging solution for companies, plastic is still widely used for this purpose (Nguyen et al., 2020), and in an attempt to mitigate this problem, several governments around the world have already banned the use of single-use plastics (Calderwood, 2018).

At the same time, consumers are more concerned about the environment, which has triggered the appearance of a growing number of eco-efficient goods (Yang & Zhao, 2019), making it pertinent to understand the trend in consumer behaviour regarding the purchase of eco-efficient packaging. Although there are several studies on consumer attitudes towards packaging design elements, the number of studies evaluating the effect of sustainable packaging on consumer decisions is relatively scarce (Boz et al., 2020).

Therefore, this study aims to respond to the gap identified in the literature regarding the factors that determine the intention to purchase products with eco-efficient packaging (Boz et al., 2020; Martinez et al., 2021; Rijo, Crespo & Silva, 2024; Sousa et al., 2020).

Specifically, while existing research has primarily focused on general attitudes or environmental concerns, there remains limited insight into how consumers

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cognitively and emotionally engage with eco-efficient packaging as a strategic element of branding – particularly through the lens of perceived benefits and emotional attachment to the brand. This study contributes to theoretical advancement by integrating the benefits framework (utilitarian, symbolic, and hedonic) with the concept of brand emotional attachment and extending this combined perspective to the context of eco-efficient packaging, in order to explore how these dimensions collectively influence purchase intention.

First, the aim is to analyse how a brand's strategic implementation of an eco-efficient packaging influences brand emotional attachment through consumer's perceptions of utilitarian, symbolic, and hedonic benefits. And second, this study investigates the effect of eco-efficient packaging on purchase intention, considering consumer's cost–benefit evaluation of eco-efficient packaging. Therefore, this study examines the impact of consumers' perceptions of utilitarian, symbolic, and hedonic benefits associated with the use of eco-efficient packaging on brand emotional attachment, and the subsequent effect on purchase intention, taking into account the moderating effect of the cost–benefit variable.

By shedding light on the psychological mechanisms through which eco-efficient packaging influences consumer responses – particularly through perceived benefits and emotional brand attachment – this study offers a more comprehensive understanding of sustainable packaging as a strategic branding tool. Rather than viewing packaging solely as a functional or visual component, the research highlights its role in shaping deeper consumer-brand connections and purchase intentions, thus expanding current theoretical perspectives in both sustainability and consumer behaviour domains.

2. Literature review and research hypotheses

2.1 Eco-efficient packaging

Packaging is one of the most important components of a food or non-food product because a well-packaged product can be a guarantee of consumer protection (Sokolova et al., 2023). The type of packaging is an instrument of communication between companies and consumers and is capable of attracting the consumer's attention (Draskovic et al., 2009). Several studies show that packaging design features, as well as packaging size (Argo & White, 2012; Coelho do Vale et al., 2008), shape (Chandon &

Ordabayeva, 2009), colour (Mai et al., 2016), and packaging labelling (Dubois et al., 2021), affect consumers' purchasing decisions and consumption (Sokolova et al., 2023). However, as a result of the new guidelines for environmental protection, packaging must protect products but also be environmentally friendly (Orzan et al., 2018), highlighting the importance of packaging composition (Sokolova et al., 2023).

Thus, green packaging – also known as ecological packaging, sustainable packaging, or recyclable packaging – uses ecological materials, always bearing in mind that the products it contains must be effective and safe for human health and the environment (Wandosell et al., 2021).

2.2 Brand emotional attachment

The concept of brand emotional attachment was “borrowed” from the attachment theory (Bowlby, 1982). Thus, brand emotional attachment describes the strength of the bond that consumers have with the brand. The psychological attachment to a particular brand, and its emotional significance, can be a determining factor in consumer behaviour, leading them to make repeated purchases of that brand, predisposing them to spend resources to obtain it (e.g., money and effort), and eventually inducing them to become loyal to it (Ghorbanzadeh & Rahehagh, 2021; Lee & Workman, 2015).

Aware of the need for this type of relationship, brands are increasingly seeking to foster strong emotional connections with their customers, hoping to promote trust with the brand (Dwivedi et al., 2018; Loureiro et al., 2012) and the company's credibility (Dwivedi et al., 2018; Kim & Villegas, 2009). Customers must identify with the brand on an emotional level to expand the prospects of even greater consumer–brand interactions (Aboulnasr & Tran, 2020).

2.3 Relationship between utilitarian, symbolic, and hedonic benefits and brand emotional attachment

The benefits perceived by consumers can be utilitarian, symbolic, or hedonic. About the first category of benefits, according to Mimouni-Chaabane and Volle (2010), utilitarian benefits are those that are stated in advance as instrumental, functional, and cognitive, providing value to the consumer because they offer a means to an end. Utilitarian benefits are linked to fundamental motivations such as safety needs and are typically associated with the tangible features of a product (Peterson, 2015). Therefore,

utilitarian benefits refer to the functional, practical, and instrumental advantages of consumption offerings (Chitturi et al., 2008). Functional value can play a significant role in building and maintaining long-term consumer-brand relationships, particularly when these functional attributes consistently meet or exceed consumer expectations, thus contributing to emotional attachment (Peterson, 2015). The satisfaction of utilitarian needs – such as reliability, efficiency, or product performance – can foster trust, commitment, and ultimately emotional attachment to the brand (Park et al., 2010; Thomson et al., 2005). Therefore, the more consumers perceive utilitarian benefits in a brand, the more likely they are to develop a sense of confidence, dependency, and emotional closeness – core components of brand emotional attachment (Peterson, 2015; Thomson et al., 2005). Thus, the more utilitarian benefits perceived by the consumer, the greater their closeness, i.e. their brand emotional attachment (Peterson, 2015).

The second category of benefits, symbolic benefits, represents the extrinsic advantages that products (or services) provide about the needs for personal expression, self-esteem, and social approval, resulting from intangible attributes that are often unrelated to the product (Keller, 1993). Thus, symbolic benefits fulfil internally driven needs, such as those related to ego-identification or self-enhancement (Bairrada et al., 2018). In this sense, and in view of the above, it follows that the more symbolic benefits perceived by the consumer, the greater their bond and sense of belonging to the brand, and thus, the greater their attachment to the brand.

Finally, the third category of benefits, hedonic benefits, derive from benefits that are not instrumental, but rather experiential, emotional, and personally rewarding (Mimouni-Chaabane & Volle, 2010). Keller (1993) defined experiential hedonic benefits as being related to how one feels when using a product or enjoying a service. These benefits satisfy experiential needs such as sensory pleasure, variety, and cognitive stimulation. Trying out new or innovative products, satisfying curiosity about events and promotional offers, or looking for information to keep up with new trends are examples of exploratory behaviour (Arnold & Reynolds, 2003). In this way, rewarding and pleasurable experiences confer more hedonic benefits on the consumer and are expected to lead to a greater brand emotional attachment. Based on the above, we propose the following hypotheses:

H1: Utilitarian benefits are positively associated with brand emotional attachment.

H2: Symbolic benefits are positively associated with brand emotional attachment.

H3: Hedonic benefits are positively associated with brand emotional attachment.

2.4 Emotional attachment and purchase intention of eco-efficient packaging

According to Chen et al. (2020), purchase intention can be defined as a propensity to purchase a brand or product and can be used to understand the likelihood of a consumer buying a product. Jaiswal and Kant (2018) indicate that the intention to buy green products, which includes their eco-efficient packaging, is linked to the consumer's willingness to purchase environmentally friendly products, and that they are not only concerned with the qualities of the product but also with the environmental impact inherent in their purchasing decisions.

The process of forming purchase intentions is complex, and many variables explain the intention to buy green products. Some authors point to the consumer's values, beliefs, demographic characteristics, needs, motivation, knowledge, or attitudes (Ahmad & Zhang, 2020), while others point to a person's behaviour (Sreen et al., 2018). Tsakiridou et al. (2008) indicate the customer's lack of trust in environmentally friendly resources and in a product's ethical claims as the main obstacle to buying environmentally friendly products. In turn, the promotion of trust in a brand can be achieved through brand emotional attachment (Dwivedi et al., 2018; Loureiro et al., 2012). Brand emotional attachment incorporates the strength of the relationship that consumers have with the brand. Therefore, brand emotional attachment can be a crucial factor in consumer behaviour, influencing the decisions to purchase the brand (Ghorbanzadeh & Rahehagh, 2021; Lee & Workman, 2015). Consequently, a brand emotional attachment is expected to facilitate the process of accepting a new package or new product, through a greater willingness to try the new item (Aboulnasr & Tran, 2020; Dwivedi et al., 2018). Based on the above, the following hypothesis is proposed:

H4: Brand emotional attachment is positively associated with purchase intention.

2.5 Cost-benefit

Referring to green products, Biswas and Roy (2015) address cost-benefit as the degree to which the consumer's need is satisfied. This cost-benefit is explained by evaluating the net utility perceived by the consumer when purchasing green items, based on their perception of the price factor of these products. The authors add that cost-benefit, in

terms of the intention to buy green products, influences consumer behaviour.

Joshi and Rahman (2015) identified environmental awareness and concern, as well as the functional and green attributes of the product, as the main drivers of consumers' green purchasing behaviour, while the high price and inconvenience of this purchase are the main barriers. In this sense, Wijekoon and Sabri (2021) state that customers want to buy eco-efficient items, although this somehow does not materialize in actual purchases. One of the main reasons for this is the price. Consumers want to buy green products, but not at higher prices; they want to buy environmentally friendly items, but at a low price, as they attach greater importance to this criterion. Therefore, if the price of the product is higher than their expectations, this will weaken the effect of their eco-friendly attitude and thus widen the green gap. Nguyen et al. (2019a) defend this cost-benefit position. They point out that although high-income consumers may spend more on green products/packaging, they may not buy them due to their lack of trust in them. Ecological awareness is imperative in creating these bonds of trust. If consumers understand the ecological advantages inherent in the items, they may be willing to buy them.

Although brand emotional attachment plays a crucial role in influencing consumer behaviour (Thomson et al., 2005), its impact on purchase intention may be significantly shaped by the consumer's cost-benefit evaluation. Emotional attachment reflects a consumer's deep emotional bond with a brand, often associated with trust, identification, and loyalty (Dwivedi et al., 2018). However, in the context of green products, this affective bond may not be sufficient to lead to actual purchase if the consumer perceives that the economic cost outweighs the perceived benefits. Research suggests that consumers, particularly in eco-friendly contexts, tend to rationalize their decisions

based on perceived value and price fairness (Nguyen et al., 2019b). Thus, even highly attached consumers may refrain from purchasing green products if the price is perceived as too high or unjustified. Conversely, when the cost-benefit perception is favourable and consumers believe they are receiving sufficient value for the price, the emotional bond with the brand may more effectively translate into actual purchase intentions (Chaudhuri & Holbrook, 2001). In this sense, the cost-benefit evaluation acts as a key moderator that can either amplify or attenuate the influence of emotional attachment on consumer decision-making. Thus, we hypothesize:

H5: Costbenefit has a positive moderating effect on the relationship between brand emotional attachment and purchase intention.

Following on from the hypotheses outlined above, we propose the conceptual model shown in Figure 1.

3. Methods

3.1 Data collection

Primary data were collected through an online questionnaire addressed to the Portuguese market, aimed at all individuals who could buy eco-efficient packaging. The target population of the study comprised consumers aged 18 years and above. Data collection was carried out through an online survey, which was distributed via email and shared on social media platforms (e.g., Facebook and WhatsApp), employing a convenience-based, non-probability sampling method. To recruit participants, the researchers utilized a range of personal and institutional mailing lists and networks, including friends, academic communities (students, faculty, and administrative staff),

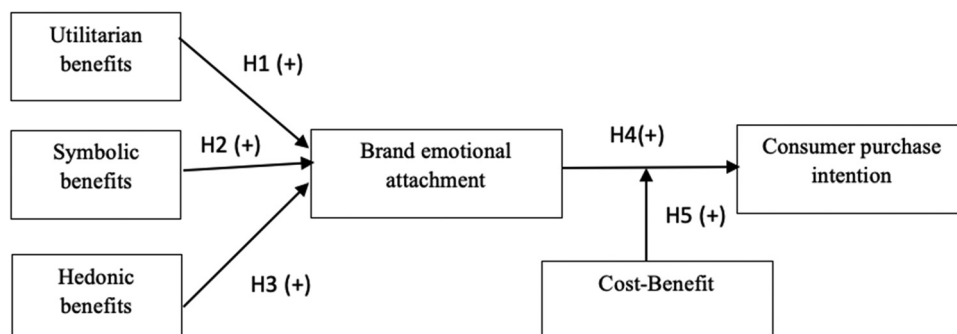


Figure 1. Conceptual model.

Source: Authors' own research.

as well as colleagues from both private and public sector organizations. In addition, a snowball sampling approach was adopted, whereby initial participants were encouraged to disseminate the survey link to their contacts through email and social media channels. The survey was initially created in English and then translated into Portuguese. Its accuracy was assessed through a back-translation process. Following this, a pre-test was conducted to evaluate its clarity. Following the final implementation of the questionnaire, 305 valid responses were collected.

The majority of the sample was female (73%). The most representative age range was 41–50 years (47% of the sample). More than half of the sample has a bachelor's degree (61%), 22% have secondary education, and 11% have a master's degree. As for the income of the respondents, the most prominent range is €1,001–€2,000 (61%), followed by the €500–€1,000 range, with 31%. Non-response bias was verified, based on the absence of significant differences between early and late respondents (Armstrong & Overton, 1977). To prevent common method bias, we implemented the procedural strategies recommended by Podsakoff *et al.* (2003) (e.g., using clear and concise items and ensuring respondent anonymity). In addition, an exploratory factor analysis confirmed that the data are not affected by the presence of common method bias (Podsakoff *et al.*, 2003).

3.2 Measurement

The questionnaire was based on measures previously tested and validated by other authors. A 5-point Likert scale was used (1 – strongly disagree to 5 – strongly agree). Scales proposed by Mimouni-Chaabane and Volle (2010) were used to measure utilitarian, symbolic, and hedonic benefits. The brand emotional attachment construct was measured using a scale proposed by Escalas (2004). Purchase intention was measured with a scale adapted from Sreen *et al.* (2018), and the cost–benefit variable was measured with a scale proposed by Biswas and Roy (2015). Table 1 presents all measurement items.

4. Data analysis and results

Statistical analysis was carried out with partial least squares structural equation (PLS-SEM) using SMART PLS 4.0 software (Ringle *et al.*, 2024). Following the recommendations of Hulland (1999), the reliability and validity of the measurement and structural models were assessed. An

individual evaluation of the items was carried out to check the adequacy of the model. As presented in Table 1, all the factor loadings obtained were equal to or greater than 0.7, thus confirming their reliability (Barclay *et al.*, 1995).

To verify convergent validity, several indicators were assessed, namely Cronbach's alpha, composite reliability, and average variance extracted (AVE). The values obtained for Cronbach's alpha exceed the threshold of 0.7 for all the variables in the model (above 0.8), demonstrating that the measures are reliable and have content validity (Hair *et al.*, 2009).

Composite reliability assesses the internal consistency of all the indicators of the latent variables and must be higher than 0.7 (Bagozzi, 1980; Bagozzi & Yi, 2012). In this case, all the variables have values above 0.7, thus suggesting a strong internal consistency (the lowest value obtained is 0.918). In addition, the AVE was analysed, and all the values were above 0.6 (the lowest was 0.617), higher than 0.5 as recommended (Fornell & Larcker, 1981), indicating that all the variables have convergent reliability. Table 1 presents Cronbach's alpha, composite reliability, and AVE values for all constructs.

Discriminant validity was evaluated using the Fornell–Larcker criterion (Fornell & Larcker, 1981). The square root of the AVE for each construct exceeds the correlations between constructs, confirming discriminant validity (Table 2).

As part of the evaluation of the structural model, the R^2 value was calculated to assess the level of variance explained by each of the dependent variables. All the dependent variables had R^2 values higher than 10%, namely 0.594 for brand emotional attachment and 0.276 for the intention to buy eco-efficient packaging, allowing us to conclude that the model has a good explanatory capacity (Falk & Miller, 1992).

Analysing the results (Table 3), regarding hypothesis 1, there is no statistical support for the positive influence exerted by utilitarian benefits on brand emotional attachment ($\beta = -0.071$, t -value = 1.389). Hypothesis 2 concerning the positive influence of symbolic benefits on brand emotional attachment was statistically supported ($\beta = 0.541$, $p < 0.001$, t -value = 8.602). Hypothesis 3 related to the positive influence of hedonic benefits on brand emotional attachment was also statistically supported ($\beta = 0.343$, $p < 0.001$, t -value = 5.790). Moreover, hypothesis 4 that predicted a positive effect of brand emotional on purchase intention was supported ($\beta = 0.250$, $p < 0.001$, t -value = 3.809). Finally, hypothesis 5 that predicted the moderating effect of cost–benefit on the relationship between brand emotional attachment and purchase intention was not supported ($\beta = -0.008$, t -value = 0.202). It should be noted,

Scale items	Factor loading	Cronbach's alpha	Composite reliability	AVE	R ²
Utilitarian benefits	0.918	0.911	0.944	0.849	—
1. I have the opportunity to shop at a lower cost, opting for eco-efficient packaging					
2. I can spend less on my purchase through a special price on eco-efficient packaging	0.948				
3. I save money through exclusive discounts for products that use eco-efficient packaging	0.898				
Symbolic benefits	0.742	0.896	0.918	0.617	—
1. Eco-efficient packaging takes better care of me	0.795				
2. Eco-efficient packaging makes me feel better than other customers who don't use it	0.795				
3. Brands that use eco-efficient packaging treat me with more attention	0.803				
4. Eco-efficient packaging makes me feel more distinct than other customers who don't use it	0.706				
5. I feel like I belong to a community of people who share the same eco-efficiency values	0.839				
6. I feel closer to the brand (with these eco-efficiency values)	0.812				
7. I feel like I share the same values as the brand (which uses eco-efficient packaging)	0.841	0.913	0.933	0.700	—
Hedonic benefits					
1. Following the eco-efficient packaging trend on social media is fun	0.881				
2. Following the eco-efficient packaging trend on social media is enjoyable	0.846				
3. The content presented about eco-efficient packaging is interesting (social media)	0.839				
4. I have the opportunity to stay up to date with new eco-efficient packaging	0.864				
5. I discover packaging that I wouldn't have known about otherwise	0.741				
6. I can have exclusive access to receive and try new eco-efficient packaging	0.839	0.931	0.945	0.709	0.594
Brand emotional attachment					
1. Brands that use eco-efficient packaging reflect who I am.					
2. I can identify with brands that use eco-efficient packaging	0.844				
3. I feel a personal connection with brands that use eco-efficient packaging	0.843				
4. I use (or can use) brands that use eco-efficient packaging to communicate who I am to someone else	0.834				
5. I think that brands that use eco-efficient packaging help (can help) make me the type of person I want to be	0.849				
6. I see myself in brands that use eco-efficient packaging (reflecting what I consider myself to be or the way I want to be seen by others)	0.873				
7. Brands that use eco-efficient packaging fit me well	0.810				
Purchase intention	0.931	0.893	0.934	0.825	0.276

(Continued)

Table 1: *Continued*

Scale items	Factor loading	Cronbach's alpha	Composite reliability	AVE	R ²
1. I intend to buy eco-efficient packaging 2. I plan to purchase eco-efficient packaging 3. I will purchase eco-efficient packaging in my next purchase	0.938 0.855 0.842	0.892	0.925	0.756	—
Cost-benefit 1. Eco-efficient packaging is good packaging for its price 2. Eco-efficient packaging has good economic value 3. Eco-efficient packaging is reasonably priced 4. Eco-efficient packaging offers a good value for money	0.889 0.906 0.840				

Table 1. Item and scale reliabilities.

Source: Authors' own research results/contribution.

and only as an additional note, that despite the lack of statistical support for the moderating effect of the cost–benefit variable, a positive direct effect was detected between the cost–benefit variable and purchase intention ($\beta = 0.349$, $p < 0.001$, t -value = 5.362).

5. Discussion and conclusions

5.1 Discussion

This research aims to investigate how a brand's implementation of eco-efficient packaging influences consumer behaviour. Although previous studies have examined consumer attitudes towards packaging design elements, research evaluating the effect of sustainable packaging on consumer decisions is relatively scarce (Boz *et al.*, 2020). Therefore, the main purpose of this work is to investigate how eco-efficient packaging influences brand emotional attachment through consumer's perceptions of utilitarian, symbolic, and hedonic benefits, and to assess its ultimate effect on consumer's purchase intention.

The results indicate that consumers' perceptions of utilitarian benefits do not have a positive impact on brand emotional attachment. According to Peterson (2015), this type of benefit suggests monetary benefits, i.e. they encourage the need to save money as the consumer's main motivation. Consequently, consumers' purchase decisions are linked to receiving refunds or other benefits, which accrue when they regularly buy from the same brand, making this “dependence,” or consumer convenience, for a particular brand a “hostage” relationship rather than a true emotional connection.

Regarding the symbolic benefits perceived by the consumer, the findings demonstrate that they have a positive effect on the brand emotional attachment. These results find theoretical support in the perspective defended by Gordon *et al.* (1998), Keller (1993), and Muniz and O'Guinn (2001), who state that the symbolic advantages – recognition and social approval – of brands transmitted to the consumer, add positive discrimination towards them, providing them with personalized offers as a sign of distinction and conferring status by sharing the same values and providing a greater bond and sense of belonging with the brand.

In addition, hedonic benefits have a positive effect on brand emotional attachment. These benefits are recognized through two dimensions: entertainment and exploration. As advocated by Arnold and Reynolds (2003), Keller (1993), and Mimouni-Chaabane and Volle (2010), they

	Hedonic benefits	Symbolic benefits	Utilitarian benefits	Cost–benefit	Purchase intention	Brand emotional attachment
Hedonic benefits	0.837					
Symbolic benefits	0.681	0.786				
Utilitarian benefits	0.554	0.609	0.921			
Cost–benefit	0.515	0.510	0.486	0.870		
Purchase intention	0.449	0.492	0.444	0.479	0.908	
Brand emotional attachment	0.672	0.731	0.449	0.516	0.432	0.842

Note: Bold scores are the square root of AVE; the correlations between variables appear below the bold diagonal.

Table 2. Discriminant validity.

Source: Authors' own research results.

correspond to the values inherent in new product/packaging experiences, satisfying experiential needs, accompanying innovation, variety, cognitive stimulation, and sensory pleasure. As Mimouni-Chaabane and Volle (2010) point out, allowing customers to enjoy a unique experience that would otherwise not be possible will leave a positive mark on the consumer. This sum of positive emotional results defines the brand emotional attachment.

The results also show that brand emotional attachment positively influences the consumer's intention to buy products with eco-efficient packaging. Therefore, our findings demonstrate that a consumer-brand emotional connection significantly enhances purchase intention by fostering deeper and more meaningful relationships between the customers and the brand. This result is line with previous studies that argue that brand emotional attachment influences consumer behaviour, since it helps them to invest even more in the brand, thus promoting trust in the brand (Ghorbanzadeh & Rahehagh, 2021).

Finally, the results indicate that cost–benefit does not have a positive moderating effect on the relationship between brand emotional attachment and the consumer's purchase intention for products with eco-efficient

packaging, even though some authors consider this variable (cost–benefit) to be one that most influences consumer behaviour (Biswas & Roy, 2015). This lack of a moderating effect may be explained by the fact that emotional attachment, particularly when driven by symbolic and hedonic benefits, often triggers automatic, affect-driven decision-making processes, which can override rational evaluations such as cost–benefit assessments. In other words, when consumers feel emotionally connected to a brand, their intention to purchase may be primarily influenced by affective factors, rendering cost–benefit considerations less relevant in that specific context. However, our findings indicate that there is a significant positive direct effect between cost–benefit and purchase intention, indicating that if the consumer recognizes that there is a favourable cost–benefit relationship in obtaining the product with eco-efficient packaging, there is a high probability of intention to purchase it. This suggests that although cost–benefit is a strong independent predictor of purchase intention, its influence does not intensify or weaken the effect of emotional attachment, possibly because the two constructs operate through distinct psychological mechanisms – one affective and the other cognitive.

Hypotheses	Statistics <i>t</i>	Path coefficient	Result
H1: Utilitarian benefits are positively associated with brand emotional attachment	1,389	–0.071	Not supported
H2: Symbolic benefits are positively associated with brand emotional attachment.	8,602***	0.541	Supported
H3: Hedonic benefits are positively associated with brand emotional attachment	5,790***	0.343	Supported
H4: Brand emotional attachment is positively associated with purchase intention	3,809***	0.250	Supported
H5: Cost–benefit has a positive moderating effect on the relationship between brand emotional attachment and purchase intention	0.202	–0.008	Not Supported

Note: *** $p < 0.001$; two-tailed test was used for all hypotheses.

Table 3. Structural model results.

Source: Authors' own research results.

5.2 Theoretical and practical contributions

As consumers' concerns about environmental issues continue to grow, the impact of green packaging design on their behaviour is becoming increasingly important. Consumers are paying closer attention to product packaging than ever before (Yang & Zhao, 2019). As a result, the rising number of environmentally conscious consumers has driven the emergence of more products with eco-efficient packaging. Understanding consumer behaviour trends related to the purchase of these products is crucial. Consumers today acknowledge that their actions, choices, and overall behaviour impact and exacerbate environmental issues. This awareness can lead them to alter their consumption habits and opt for more eco-friendly products (Sanskriti *et al.*, 2016).

However, several studies, such as Frank and Brock (2018), Groening *et al.* (2018), and Park and Lin (2020), continue to highlight a gap between consumers' thinking and their actual behaviour. Studies often reveal an inconsistency between what consumers express and what they actually do in terms of sustainable behaviour (Gleim & Lawson, 2014). This means that consumers' positive attitudes towards eco-friendly products do not always translate into actual purchasing behaviour.

Consequently, this research contributes to increase the existing knowledge on the influence of a brand's strategic implementation of eco-efficient packaging on consumer behaviour. Particularly, this study analyses which consumer's perceived benefits associated with the use of eco-efficient packaging have a stronger impact on brand emotional attachment and on the intention to purchase eco-efficient packaging. At the same time, it provides new insights into the role of these benefits in the consumption of green packaging and presents recommendations for the development of effective marketing strategies that can attract more customers to purchase green packaging.

Our results show that utilitarian benefits do not significantly influence the brand emotional attachment. This suggests that brand managers may not be effectively communicating to consumers the utilitarian benefits associated with purchasing products with eco-efficient packaging. Since utilitarian benefits refer to the functional, practical, and instrumental advantages of consumption offerings (Chitturi *et al.*, 2008), to more efficiently and effectively communicate these types of benefits to consumers, managers can emphasize the practical benefits of eco-efficient packaging, such as durability, ease of use, and better product protection. Furthermore, as utilitarian benefits suggest monetary benefits (Peterson, 2015), managers can implement clear messaging and engagement

strategies, indicating how eco-friendly packaging can lead to long-term savings, such as through reduced waste or reuse options.

Additionally, our findings confirm that symbolic benefits enhance brand emotional attachment. As a result, managers must prioritize communicating the symbolic benefits of eco-efficient packaging. Since symbolic benefits stem from personal expression and social approval (Bairrada *et al.*, 2018), it is crucial to highlight how choosing eco-efficient packaging reflects a consumer's personal values, such as environmental responsibility, sustainability, or ethical consumption. By promoting the idea that purchasing eco-friendly products elevates social approval from peers, especially in eco-conscious communities, and by associating eco-efficient packaging with values like social responsibility, and collective action, managers can emphasize the brand's symbolic benefits and strengthen the emotional connection with the consumer. Furthermore, the use of a branding strategy based on narratives that focus on sustainability, community impact, or eco-friendly practices can strengthen the symbolic meaning behind the packaging. Acknowledging consumers for their sustainable choices boosts their sense of accomplishment and social status. Thus, consumers may feel a sense of belonging or contribution to a greater cause, which enhances the symbolic value of their purchase.

Furthermore, results support the existence of a positive influence of hedonic benefits on brand emotional attachment. As hedonic benefits derive from benefits that are experiential, emotional, and personally rewarding (Mimouni-Chaabane & Volle, 2010), managers should implement a strategic approach that promotes consumers' personal gratification and experiential engagement. To leverage eco-efficient packaging hedonic benefits, managers can implement experiential marketing strategies, including in-store experiences that allow consumers to interact with the eco-efficient packages, such as live demonstrations, sampling products, or using interactive digital content, as well as workshops and events to educate consumers about sustainability and the benefits of eco-efficient packaging and enhance their emotional connection to the brand.

Moreover, considering the positive impact of brand emotional attachment on consumers' purchase intentions for products with eco-efficient packaging, marketers should focus on creating content that builds trust and emotional connections with consumers. Brand emotional attachment shapes consumer behaviour by enhancing brand trust and mitigating perceived risks, particularly when introducing innovative products or packaging (Aboulnasr & Tran, 2020). By reinforcing both brand trust

and company credibility (Dwivedi et al., 2018), emotional attachment strengthens the consumer–brand relationship, encouraging deeper engagement and long-term loyalty (Ghorbanzadeh & Rahehagh, 2021). This emotional connection ultimately enhances purchase intention through the creation of positive associations and reduced risk perceptions – underscoring its critical role in effective branding strategies.

To translate these findings into actionable strategies, companies should tailor their marketing approaches based on the specific context of their industry. For example, in the food sector, symbolic benefits can be emphasized by associating eco-efficient packaging with health-conscious lifestyles and environmental responsibility – e.g. using biodegradable or compostable packaging for organic or natural products, and communicating these values through storytelling on packaging labels and digital platforms. In contrast, in the cosmetics industry, brands may highlight hedonic benefits by focusing on sensory experiences and aesthetic appeal, such as elegant, sustainable packaging designs that offer a luxurious feel, or refillable systems that enhance the product's experiential and emotional value.

Digital marketing tools can also play a crucial role in amplifying both the symbolic and experiential appeal of eco-efficient packaging. Through social media platforms, brands can share narratives that highlight consumers' sustainable choices, reinforcing personal values such as environmental responsibility and social belonging. Influencer marketing, for instance, can further enhance symbolic value by showcasing eco-packaging as a lifestyle statement endorsed by respected voices. Moreover, interactive digital content – such as 360° product views, augmented reality experiences, and gamified sustainability challenges – can elevate the hedonic experience by creating immersive and emotionally engaging interactions with the packaging. These tools can not only make the brand more relatable and inspiring but also foster a sense of community and shared purpose around sustainability, ultimately strengthening brand emotional attachment.

These sector-specific and digitally enabled strategies, grounded in the perceived benefits, can help firms more effectively engage with their target audiences and reinforce the emotional and symbolic value of eco-efficient packaging. By aligning the design and communication of packaging benefits with consumers' values and expectations in each industry, brands can increase emotional attachment and, ultimately, influence sustainable purchase behaviours more effectively.

5.3 Limitations and suggestions for future research

The cross-sectional design used in the research is a limitation that could be overcome in future studies through a longitudinal research design, allowing a better understanding of how the variables under study correlate over time. The use of a Portuguese sample, predominantly composed of female respondents and with a strong representation of individuals aged between 41 and 50, may limit the generalizability of the findings. Furthermore, an extended study could be conducted in other countries to assess potential cross-cultural differences in consumers' perceptions and behaviours towards eco-efficient packaging.

Additionally, the present study measures the impact on purchase intention rather than actual purchase behaviour, suggesting that future research could explore the effect on actual purchasing decisions. Moreover, future studies could employ qualitative methods or consumer segmentation approaches to gain deeper insights into the role of cost–benefit analysis as a moderating factor in the relationship between emotional attachment and purchase intention.

Finally, this research focused on the intention to purchase eco-efficient packaging in a multi-brand, multi-sector context. Future studies could concentrate on a specific type of packaging or target a particular sector (e.g. cosmetics, food) to explore potential variations in the effects of implementing eco-efficient packaging across different industries.

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Author contributions

Cátia Fernandes Crespo: Conceptualization, Methodology, Data Analysis, Supervision, Writing – Original Draft Preparation, Writing – Review & Editing. Tânia Silva: Conceptualization, Methodology, Data Collection and Analysis, Writing – Original Draft Preparation. Susana Rijo, Writing – Original Draft Preparation; Writing – Review & Editing.

Conflicts of interest statement

Authors state no conflicts of interest.

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