

The impact of green marketing on collective behaviour: Experimental evidence from the sports industry

Gianluca Gionfriddo¹  | Francesco Rizzi^{1,2} | Tiberio Daddi¹ | Fabio Iraldo¹

¹Institute of Management and Department EMbeDS, Scuola Superiore Sant'Anna, Pisa, Italy

²Department of Economics, Università degli Studi di Perugia, Perugia, Italy

Correspondence

Gianluca Gionfriddo, Institute of Management and Department EMbeDS, Scuola Superiore Sant'Anna, Piazza Martiri della Libertà, 33, 56127, Pisa, Italy.

Email: gianluca.gionfriddo@santannapisa.it

Abstract

This paper aims to investigate how supporters perceive and react to environmental messages that call for reducing the environmental impact of sporting events. Based on prospect theory, we randomly provided 1423 supporters attending football events in Europe with (1) a negative (perceived loss for supporters), (2) a neutral (no perceived gain or loss) or a (3) a positive (perceived gain for supporters) environmental message and measured their attitudes towards the message, pro-environmental behavioural intentions and perceived consumer effectiveness. Our results reveal that supporters show traits of collective behaviour during sports events that may lower the in-stadium effectiveness of environmental messages. The environmental commitment of the favoured sports club increases the influence of green marketing on supporters with higher levels of environmental values and knowledge, but only when they depart from a collective identity. This paper contributes to green marketing literature revealing that modelling collective behaviours of members of groups exposed to highly emotional situations should be coordinated with information and awareness-raising campaigns in everyday life. We also contribute to the prospect theory showing that loss aversion prevails in risk-free conditions even though it does not directly shape supporters' behavioural intentions.

KEYWORDS

collective behaviour, experimental research, framing effects, green marketing, prospect theory, sports supporters

1 | INTRODUCTION

Over the past two decades, the professional sports industry has made great strides towards substantially improving the environmental performance of its business activities and operations (Mallen &

Chard, 2011; McCullough et al., 2016, 2020; Trendafilova & McCullough, 2018). For example, in the Tokyo 2020 Summer Olympics, 60% of all facilities were pre-existing to reduce carbon emissions from sports events. To go even further into this direction, the International Olympic Committee aims to make the games carbon negative by 2030 (United Nations, 2022).

Sports organisations, such as professional sports clubs or governing bodies, play a dual role in promoting environmental sustainability in the sports industry (Inoue & Kent, 2012a). On the one hand, they

Abbreviations: AEM, attitude towards environmental messages; EV, environmental Values; PBI, pro-environmental behavioural intentions; PCE, perceived consumer effectiveness; PEK, perceived environmental knowledge.

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2023 The Authors. Business Strategy and The Environment published by ERP Environment and John Wiley & Sons Ltd.

are increasingly exposed to larger institutional pressure from different stakeholders (Babiak & Wolfe, 2009; Trendafilova et al., 2013), which ask for the adoption of operational and governance environmental practices (Todaro et al., 2022). On the other hand, they can also exert pressure on stakeholders such as media, sponsors, and supporters to increase their environmental commitment (Inoue & Kent, 2012a; Walker & Kent, 2009). Consequently, supporters are receiving greater consideration in the recent intersection between consumer marketing and sport management literature to understand better how sports organisations can contribute to environmental sustainability (Blumrodt et al., 2012; Casper et al., 2020; Trendafilova & McCullough, 2018).

Professional sports clubs are typical organisations that have the potential to leverage their brand image and institutional status to shape stakeholders' behaviours (Bauer et al., 2008; Blumrodt et al., 2012; Walker & Kent, 2009), which is particularly important to achieve shared environmental goals within the organisation's facilities (Kellison & Kim, 2014), as during sports events (Casper et al., 2020; Mair et al., 2023; Mallen et al., 2010; Trail & McCullough, 2020).

Unfortunately, despite the evidence of the potential for sports to educate and promote positive change (Dingle & Mallen, 2020; Kellison & Kim, 2014), still little is known about how sports organisations can effectively use green marketing tools to shape supporters' pro-environmental behaviours.

While sports literature acknowledged that supporters expect and welcome sustainability efforts from sports organisations (Casper et al., 2020), the most difficult challenge is to induce behaviour change through green marketing (Casper et al., 2017). Indeed, scholarly work on communication in sports has largely focused on reactions of supporters to the marketing of initiatives implemented by sports clubs rather than sports clubs advertising of pro-environmental behaviour (Inoue & Kent, 2012a; Inoue & Kent, 2012b; Trendafilova et al., 2014). Researchers have been invited to address this challenge by 'evaluating how effective marketing sustainability is and perhaps the effect it has on fan behaviour' (Trendafilova & McCullough, 2018, p. 11).

In the same vein, McCullough et al. (2020) noted that sports communication for fan engagement is one of the next research frontiers in the emerging subdiscipline of sports ecology. Among possible lines of inquiry, one research question to be answered is 'how to leverage existing sports communication channels to engage fans in the climate crisis' (McCullough et al., 2020, p. 514).

In particular, there is a need to understand how to adapt the traditional toolbox that companies have developed in the last decades in other sectors to influence their consumers in the sports industry. In this regard, Trail and McCullough (2020, p. 110) claim that 'prior studies did not examine the participants' responses to actual sustainability initiatives or messaging'.

Our research aims to fill this literature gap by providing experimental evidence on the effects of green marketing on supporters' behavioural intentions. In particular, we build on prospect theory (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992) to gain behavioural insights into how individuals react to different

environmental messages. Specifically, the prospect theory provides the framework to interpret the 'expected utility' individuals attach to their behavioural choices after exposure to positive, neutral or negative messages. In detail, we draw on this framework to understand how different framings of environmental messages can influence supporters' intention to adopt pro-environmental behaviours during professional football matches in Europe, such as waste recycling or water and food savings.

From a business perspective, understanding the drivers that influence customers of sports organisations to adopt sustainable behaviour is strategically important for several reasons. Firstly, it can help sports organisations to differentiate themselves from their competitors, particularly in an increasingly competitive sports sector (Shonk & Weiner, 2021). By pushing supporters to adopt sustainable behaviours, sports organisations can improve their reputation and credibility (Baena, 2018), enhance customer loyalty (Bauer et al., 2008) and broaden their customer base (Trail & McCullough, 2020). This is because supporters, as sports event participants, are increasingly becoming conscious of their environmental impact (Wicker, 2019) and are more likely to support organisations that align with their values (Trail & McCullough, 2020).

Secondly, promoting sustainable behaviours can also attract new investors and sponsors, particularly those who value sustainability and are looking to partner with environmentally responsible organisations (Todaro et al., 2022). This can result in increased revenue for sports organisations through increased advertising sales, merchandise sales and sponsorship deals.

Thirdly, understanding the drivers of sustainable behaviour can help sports organisations to identify new revenue streams and cost-saving opportunities (McCullough et al., 2020). By adopting eco-friendly practices, organisations can reduce their energy consumption and waste generation, leading to lower utility bills and waste management costs (Mallen et al., 2010). This can translate into higher financial performance for sports organisations.

The rest of the paper is structured as follows. Section 1 reviews the extant literature on green marketing in the sports industry and concludes with the formulation of hypotheses based on the application of prospect theory to consumers' intentions to adopt green behaviours. Section 2 provides details on methods, including sampling, data collection and data analysis. We describe the measurement models, their construct validity, and the strategies for increasing statistical accuracy. Section 3 shows the statistical results regarding each hypothesis tested. Section 4 discusses the results and provides implications for sports organisations, supporters and policymakers. Finally, Section 5 delivers conclusions, limitations of this study and opportunities for further research.

2 | GREEN MARKETING AND SUPPORTERS' BEHAVIOURS

Supporters are important stakeholders in sports organisations (García & Welford, 2015; Giulianotti, 2002). From a business

perspective, they are today increasingly considered consumers of the sports industry (Kellison & Kim, 2014; Kim & Manoli, 2023; Walker & Heere, 2011). For instance, supporters' purchasing of sport-related products and services—such as merchandising, match tickets and media services—account for the largest share of professional sports clubs' revenues (Kellison & Kim, 2014; Shonk & Weiner, 2021).

A fast-growing need of supporters is the request for greater environmental commitment from the professional sports industry (MacIntosh et al., 2013; Trendafilova et al., 2013), to such an extent that pro-environmental practices 'are now expected and desired, putting pressure on the professional sports industry to adopt them' (p. 306).

However, an active contribution of supporters is crucial to maximise the benefits from the sports organisations' adoption of sustainable practices (Casper et al., 2020; Wicker, 2019). In fact, supporters' behaviours are crucial for the success of many practices, especially during sports events (Daddi et al., 2021). For instance, the effective implementation of a recycling collection system at the stadium requires the active cooperation of supporters, who must be informed and incentivised to sort waste correctly (McCullough, 2013; Smallbone, 2005).

A joint, bi-directional effort is thus necessary to make sports events more sustainable: on the one hand, environmentally conscious supporters may push sports organisations to implement more sustainable practices (Trendafilova et al., 2013); on the other hand, sports organisations may interact with them, educating supporters for the adoption of environmental-friendly behaviours (Inoue & Kent, 2012a).

On the latter issue, there is a growing body of literature that provides knowledge on how green marketing may impact supporters' behavioural intentions (Inoue & Kent, 2012a; Kellison & Kim, 2014; Trail & McCullough, 2020). For instance, Inoue and Kent (2012a) applied Kelman's (1958) internalisation perspective to empirically show how sports clubs might foster the supporters' adoption of pro-environmental behaviours in daily life. By leveraging their strong institutional status in society, which facilitates the internalisation of the club's values, sports clubs may positively influence supporters. This evidence has been confirmed by other scholars (Walker & Kent, 2009), who also stressed the importance of the moderating role of team identification in the relationship between sustainable practices and sports clubs' reputations. Concerning the effects of implementing pro-environmental initiatives, qualitative evidence using the triple-bottom line framework (Kellison & Kim, 2014) shows how sports clubs can motivate existing supporters and attract new ones. To assess how supporters respond to those initiatives, Trail and McCullough (2020) tested a sustainability behaviour model of sports supporters, finding that needs, values, internal constraints (such as negative motivations or behavioural barriers) and points of attachments (identity standards) significantly impact the supporters' attitude towards a sustainability campaign, which in turn, together with external constraints (external barriers) and past sustainable behaviours, impact on their behavioural intentions.

2.1 | Framing of environmental messages

Despite these insights, there is ample room to explore in-depth the marketing factors that drive the success of communication campaigns focusing on supporters (MacKenzie & Lutz, 1989; Paswan et al., 2017). As recently underlined by United Nations (2022, p.2), 'sport can play an important role in educating and raising awareness towards global warming and more broadly environmental issues, including promoting a healthy, sustainable lifestyle. [...] Targeted environmental sustainability campaigns, therefore, can be key in this process'.

Understanding supporters' response mechanisms to differently framed environmental messages is crucial to learn how to educate them (Kellison & Kim, 2014). A central role in these mechanisms is indeed played by the 'framing effect', which is 'a cognitive bias emerging from the way information is communicated or presented' (Nelson et al., 2021, p. 3).

In this regard, environmental messages can present functional attributes and/or emotional attributes (Matthes et al., 2014). Functional attributes can communicate the demonstrable environmental benefits that a specific green product or behaviour may bring if compared with traditional alternatives. Their main purpose is to build brand association and loyalty (Bauer et al., 2008; Hartmann et al., 2005), which can positively impact supporters' pro-behavioural intentions (Blumrod et al., 2012). Instead, emotional attributes aim to trigger and reinforce individuals' attitudes towards pro-environmental behaviours by exploiting positive or negative associations. Positive emotional attributes usually boost enthusiasm and a sense of pride towards proactive environmental behaviours (Antonetti & Maklan, 2014). On the contrary, negative emotional attributes induce a sense of guilt, fear or shame among those who do not perform responsible actions (Brennan & Binney, 2010).

Although these framing concepts have been empirically tested in the general marketing literature, it remains unclear to what extent they can be transposed to supporters—a special category of consumers—to positively shape their pro-environmental behavioural intentions. In particular, Kellison and Kim (2014) recommended investigating if 'consumers will respond favourably to marketing that highlights the green practices of professional sports teams'. (p. 45). Other scholars (Inoue & Kent, 2012b; Trail & McCullough, 2020) were invited to closely examine how specific green messages can encourage supporters' pro-environmental behaviours.

Our research aims to fill this gap. In particular, we aim to empirically investigate how different framing of environmental messages can impact the supporters' propensity to adopt pro-environmental behaviours in the context of sports matches. Filling this gap can help provide practical suggestions to sports organisations on how to strategically design communication campaigns aimed at influencing the environmental decisions of supporters during sports matches and offer theoretical implications on the validity of green marketing rules in emotionally intensive contexts where collective identities prevail.

2.2 | The theoretical framework: prospect theory in consumers' green choices

To provide evidence on supporters' actual decision-making, we build our research design adopting the prospect theory framework (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992), which attempts to explain how individuals make decisions under conditions of uncertainty. This is particularly relevant in the context of sport clubs communication, where supporters face uncertainty about the favourite team's environmental performance (Inoue & Kent, 2012b). In contrast, Goal-setting theory, Regulatory Focus theory, and Expectancy theory are primarily concerned with explaining motivation and goal-directed behaviour, but do not provide a comprehensive framework for understanding how individuals process and respond to uncertain or risky information communicated by sports organisations (Holmes et al., 2011; Tversky & Kahneman, 1992). Unlike Goal-Setting Theory, which emphasises setting specific and challenging goals (Locke & Latham, 2006), or Regulatory Focus Theory, which emphasises the importance of matching communication to individuals' motivational orientation (Higgins, 2000; Higgins, 2012), prospect theory considers the entire decision-making process, including the influence of emotions and cognitive biases (Holmes et al., 2011). Expectancy theory focuses on the relationship between effort, performance and outcomes (Oliver, 1974), which may not fully capture the complexity of supporters' reactions to environmental communication of sports clubs.

Moreover, prospect theory is particularly relevant to experimental research design, as it allows researchers to test the effects of different environmental messages on consumers' decision-making processes and to better understand how psychological biases (perceived gains or losses) can influence their choices. This is due to the prospect theory's alternative to the normative model of rational choice of individuals (Friedman & Savage, 1948) advanced by the Expected Utility theory

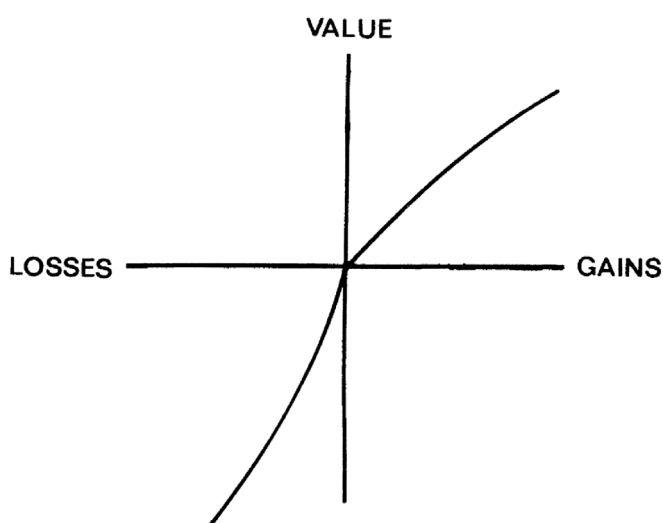


FIGURE 1 Prospect theory and the consumers' value function for losses and gains.

(Von Neumann & Morgenstern, 2007). Specifically, under conditions of uncertainty, prospect theory assumes that individuals assign value to decisions based on 'gains and losses rather than final assets', and probabilities of outcomes 'are replaced by decision weights'. (Kahneman & Tversky, 1979, p. 263). Gains and losses are relative to a certain 'reference point', which is the status quo, that is, a null perceived value of individuals given the analysed decision. More specifically, the decisions' value function (Figure 1) 'is (i) defined on deviations from the reference point; (ii) generally concave for gains and commonly convex for losses; (iii) steeper for losses than for gains' (Kahneman & Tversky, 1979, p. 279).

Two main aspects of prospect theory are useful to develop the research design of our study on sports events consumers, that is, supporters.

First, one of the major components of prospect theory is the 'loss aversion' concept, that is, 'the idea that people are much more sensitive to losses—even small losses—than to gains of the same magnitude' (Barberis, 2013). Thus, when evaluating problems of consumers' choices and decisions, it is important to consider the framing of prospects, that is, how decisions are formulated in terms of gains or losses. Indeed, prospect theory claims that consumers tend to attach more importance to losses than gains, even when the magnitude of losses and gains is equal compared to the neutral reference point. From this consideration, it follows that environmental messages directed towards the same consumers and containing the same prospect—that is, adopting an environmentally friendly behaviour to reduce the environmental impact of football matches—are perceived differently if the prospect is either framed in a positive (procured gains for the supporters) or negative way (procured losses for the supporters).

Second, reference points can differ among individuals according to their past experiences and attributes, and this alters how consumers perceive the gains and losses of prospects. More specifically, consumers' preferences are not dictated by rational judgements, yet they are influenced by not-rational perceptions. Considering supporters, among the most acknowledged factors that may impact not-rational perceptions of gains and losses, there is their environmental knowledge (Lin & Niu, 2018; Sun et al., 2018), their perceived consumer effectiveness (Antonetti & Maklan, 2014; Chingching, 2011) and their environmental values (Casper et al., 2020; Fraj & Martinez, 2006; Rizomyliotis et al., 2021; Trail & McCullough, 2020). Thus, considering the impact of these variables on the supporters' willingness to adopt pro-environmental behaviours is important.

Prospect theory has been extensively applied in behavioural economics studies concerning decision-making under risk conditions, such as in the field of finance and insurance (see Barberis, 2013, for a review and assessment of the theory applied in risk-related experimental settings). However, Thaler (1980) also speculated that prospect theory could explain human decisions under riskless conditions, opening the way for its application into various empirical contexts where consumers must decide among riskless alternatives.

In particular, concerning green consumers choices, the theory has been applied in studies on climate change (Daddi et al., 2018), recycling intentions (Davis, 1995; White et al., 2011), plastic consumption (Cheng et al., 2011), energy efficiency investments (Heutel, 2019), fashion industry (Day et al., 2020) and hotel industry (Kim & Kim, 2014).

The empirical evidence emerging from these studies is fragmentary and, to some extent, contradictory, especially concerning consumers' attitudes and responses to environmental messages that are positively (perceived procured gain) or negatively (perceived procured loss) framed (James, 2011; Kim & Kim, 2014; Levin & Gaeth, 1988).

Our study adopts the prospect theory framework to clarify the supporters' attitudes towards different environmental communication campaigns and their behavioural response mechanisms. In particular, we conducted an experimental study within the football industry, analysing how supporters respond to different framings of environmental messages during sports events.

2.3 | Hypotheses development

The theory of planned behaviour posits that actual consumers' behaviours are predicted by the degree of favourable or unfavourable attitudes towards the behaviours (Ajzen, 1991, 2012). Prospect theory also speculates that attitudes towards a prospect, such as pro-environmental behaviour, may be influenced by the way the prospect is presented or communicated (Thaler, 1980; Tversky & Kahneman, 1992). This cognitive bias is acknowledged as a framing effect (Malenka et al., 1993; Nelson et al., 2021). In particular, the attitude towards a message presenting a prospect can be altered by the perceived losses or gains for the message receiver associated with the adoption of that prospect. More precisely, losses weigh more heavily than gains, even when they are assumed to have the same magnitude with respect to a given neutral reference point. This concept is also acknowledged as consumers' risk aversion in prospect theory (Schmidt & Zank, 2008), and it is recognised as an important strategic driver of decision-making when comparing alternatives with a neutral reference point (Bromiley, 2010).

In our study, we first want to verify this assumption concerning risk aversion within the context of sports events. We aim to evaluate the supporters' attitude towards differently framed environmental messages that present the same pro-environmental prospect, that is, reducing the environmental impact of sports matches. This prospect can procure both gains or losses for supporters who decide to adopt or refuse it, with respect to the neutral status quo taken as a reference point.

If neutrally framed, the decision to adopt or not the prospect is presented as irrelevant in terms of procured gains or losses for supporters.

If negatively framed, the decision to not adopt the prospect is presented as a loss for supporters in terms of reduced air quality and travel comfort induced by pollution and traffic jams of supporters'

cars, reduced enjoyment of the match induced by a dirty stadium where people do not collect their waste.

If positively framed, the decision to adopt the prospect is presented as a gain for supporters in terms of increased travel comfort and time efficiency induced by the use of public transport and increased enjoyment of the match induced by the use of a waste recycling system.

To verify the first hypothesis, we compared the supporters' attitude towards environmental messages (AEM) of the same prospect, that is, the supporters' commitment to reducing the environmental impact of sports matches, but neutrally, positively or negatively framed. Building on the concept of loss aversion in prospect theory (Abdellaoui et al., 2007), we assume that negative environmental messages (procured loss) outperform positive environmental messages (procured gain) with respect to neutral ones. More precisely, we postulate that, considering the supporters' attitude towards the neutral message as the reference point, supporters show a more negative attitude towards the negative message (perceived losses) than a positive attitude towards the positive message (perceived gains). We thus hypothesise the following:

Hp1. Compared to the supporters' attitude towards reducing the environmental impact of sports events after a neutrally framed message, football supporters assign more value to perceived losses (i.e., the negatively framed message) than to perceived gains (i.e., the positively framed message).

When organisations spread environmental messages promoting green behaviours, consumers develop an attitude towards messages, and this impacts the effectiveness in shaping behavioural intentions (Lutz et al., 1983; MacKenzie & Lutz, 1989; Muehling, 1987; Sun et al., 2021).

Considering the decision-making process conceptualised by prospect theory (Bromiley, 2010; Schmidt & Zank, 2008), we expect that the higher value assigned by supporters to perceived losses with respect to the value assigned to perceived gains would determine their willingness to adopt pro-environmental behaviours. The risk aversion induced by the framing effect of the negative environmental message would outperform the risk-seeking attitude induced by the framing effect of the positive environmental message, leading supporters to be more prone to adopt pro-environmental behaviours when facing negative messages.

To use an environmental message with a credible prospect, we investigated the supporters' intention to adopt green behaviours that reduce the environmental impact of sports matches, such as collecting and recycling waste at the stadium, purchasing biodegradable cutlery or recycled gadgets and materials, avoiding food and water waste. This scope restriction is also due to the fact that the framing effect can be considered valid strictly for the behaviours associated with the prospect communicated by the environmental message.

Thus, we assessed the impact of the three different environmental messages on the supporters' pro-environmental behavioural

intentions (PBI) in stadiums assuming that supporters assign greater value to perceived loss rather than perceived gain (Hp2), that is, hypothesising the following:

Hp2. negatively framed messages outperform positively framed messages compared to the reference point (i.e., neutrally framed message) in shaping supporters' pro-environmental behavioural intentions during football matches.

From a behavioural research perspective, the perceived consumer effectiveness (PCE) of pro-environmental behaviours is considered crucial to solving the so-called 'attitude-behaviour' gap, that is, the consumers' difficulty in translating pro-environmental attitudes into environmentally friendly behaviours (Young et al., 2010). Understood as 'a domain-specific belief that the efforts of an individual can make a difference in the solution to a problem' (Ellen et al., 1991, p. 103), PCE has been found to be a relevant driver of individual behaviours in various studies in traditional sectors (Antonetti & Maklan, 2014; Boulstridge & Carrigan, 2000; Cho et al., 2013).

In particular, PCE appears to be a pivotal factor in the mechanism that explains the differences between attitudes and behavioural intentions, especially when facing positively framed or negatively framed messages. For instance, Antonetti and Maklan (2014, p.129) showed that 'guilt and pride do not influence behaviour directly, but they activate a learning process that leads to an increase in perceived consumer effectiveness'. By reducing the consumers' ability to neutralise their sense of responsibility, consumers exposed to positive or negative messages are expected to show higher PCE and be open to greener behavioural intentions.

Since the scope of this study is to assess the efficacy of different environmental messages in shaping pro-environmental behavioural intentions, we also want to verify if there is a positive interaction between different types of environmental messages and supporters' PCE during sports events.

In this regard, management studies underlined that football supporters are a special category of consumers because they have a strong group identity and a strong emotional attachment to their favourite sports clubs (Baena, 2018; Walker & Heere, 2011). Sports team attachment directly impacts supporters' emotions during sports events by reducing, or even suspending, the supporters' individualistic inclinations (Didry & Giannelloni, 2019; García & Welford, 2015).

For this reason, we assume that environmental messages that foster supporters to reduce the environmental impact of sports matches may have a limited impact on supporters' PCE, which is measured in terms of their perception to positively contribute to the environment through individual efforts. Consequently, we hypothesise that, regardless of the different alternatives of message framing, environmental messages limitedly influence the supporters' PCE and thus (Hp3a)

Hp3a. Positively, neutrally, or negatively framed messages are not effective in increasing the perceived

consumer effectiveness of supporters during football matches.

Sports clubs can use their social status to motivate supporters to change their lifestyles in a more environmentally conscious way by leveraging collective dynamics during sports events (Bauer et al., 2008; Casper et al., 2014). In particular, 'they can act as role models, setting examples, raising awareness and modelling behaviours, particularly among young people' (United Nations, 2022, p. 2). Thus, given the engagement of supporters in collective emotions and behaviours during sports events (Chang & Inoue, 2021; Didry & Giannelloni, 2019; Smelser, 2011), we assume that, in case of a credible environmental commitment of their favourite sports club, environmental messages aiming at reducing the environmental impact of sports events positively influence supporters' PCE (Inoue et al., 2013).

In other words, the implementation of environmentally friendly actions by sports clubs can drive supporters to collectively adopt similar behaviours and, thus, to perceive greater effectiveness in their behaviours implemented as a group.

Consequently, we hypothesise that, regardless of the different alternatives of message framing, if the supporters' favourite sports club has a credible environmental commitment, environmental messages positively influence the supporters' PCE and thus (Hp3b)

Hp3b. Positively, neutrally, or negatively framed messages are effective in increasing the perceived effectiveness of supporters during football matches if their favourite football club shows a pro-environmental commitment.

Besides framing effects, there are a series of factors that determine the success of environmental messages aimed at promoting behavioural intentions among consumers (Paswan et al., 2017).

First, in management studies, there is solid evidence that environmental values (EVs) are significant predictors of pro-environmental behavioural intentions and PCE (Fraj & Martinez, 2006; Kaiser et al., 1999). Within sport management literature, Trail and McCullough (2020) provide some empirical evidence that EVs of sports participants are positively associated with their attitude towards sustainability campaigns, which predicts their behavioural intentions. Furthermore, Casper et al. (2020) applied the Value-Belief-Norm framework to highlight the role of EVs in the relations between personal and sport-event norms and the supporters' engagement in sustainability initiatives. However, empirical evidence on supporters as consumers of sports matches is scarce, and it is not conclusive concerning the influence of EVs on the PCE of supporters.

Second, although various scholars evaluated the impact of consumers' environmental knowledge on their pro-environmental attitudes and behaviours (Frick et al., 2004; Kollmuss & Agyeman, 2002; Sun et al., 2018), their contrasting results call for further investigations on the issue of environmental knowledge as a

factor influencing consumers' pro-environmental behavioural intentions.

More specifically, the supporters' perceived environmental knowledge (PEK), which is their level of perceived knowledge on specific environmental issues (Leonidou & Skarmas, 2017; Mostafa, 2007), might impact the supporters' capacity to purchase greener products (Yarimoglu & Binboga, 2019), and to recognise recycled products, sustainable packaging and third-party environmental certifications useful to adopt greener behaviours (Bray et al., 2011; Testa et al., 2015, 2020). As suggested by Johnstone and Tan (2015, p.318), 'confusing information also contributes towards the perception that it is too hard to be green', thus reducing the PCE of green behaviours adopted by consumers.

To verify the significance of these factors in the context of sports events, together with the framing effects, we explore the impact of EVs and PEK on supporters' PCE. In particular, we assume that supporters' EVs and PEK are influential covariates in the interaction between environmental messages and PCE. Nevertheless, coherently with the previous considerations on supporters' group identity and

their collective dynamics, we hypothesise that, while controlling for supporters' EV and PEK, environmental messages are not effective in shaping supporters' PCE when their favourite football club does not show the pro-environmental commitment, which leads to the following Hp4a and Hp4b:

Hp4a. Positively, neutrally, or negatively framed messages from non-environmentally-committed football clubs, while controlling for supporters' environmental values and perceived environmental knowledge, are not effective in increasing the perceived effectiveness of supporters during football matches.

Hp4b. Positively, neutrally, or negatively framed messages from environmentally-committed football clubs, while controlling for supporters' environmental values and perceived environmental knowledge, are effective in increasing the perceived effectiveness of supporters during football matches.

TABLE 1 Date, country, match and stadium of valid questionnaires collected.

Date	Country	Match	Stadium	Valid questionnaires
05/05/2019	Italy	Genoa-Roma	Luigi Ferraris, Genova	270
20/05/2019	Italy	Lazio-Bologna	Stadio Olimpico, Rome	149
26/05/2019	Italy	Roma-Parma	Stadio Olimpico, Rome	198
25/09/2019	Sweden	AIK-Göteborg	Friends Arena, Stockholm	75
05/10/2019	Sweden	AIK- Örebro	Friends Arena, Stockholm	110
12/10/2019	Italy	Italy-Greece	Stadio Olimpico, Rome	146
15/10/2019	Sweden	Sweden-Spain	Friends Arena, Stockholm	160
02/11/2019	Sweden	AIK-Sundsvall	Friends Arena, Stockholm	80
19/01/2020	Italy	Genoa-Roma	Luigi Ferraris, Genova	235
Total				1423



FIGURE 2 Negatively framed message: perceived loss for supporters.

3 | METHOD

3.1 | Data collection

To test our hypotheses, we collected primary data from a sample of 1517 supporters through face-to-face interviews before the beginning of nine European professional football matches. Specifically, we attended four football matches of 'Serie A', that is, the maximum Italian championship; three football matches of 'Allsvenskan', that is, the maximum Swedish championship; one football match of the Italian National Football Team and one football match of the Swedish National Football team. Besides matching relevance and accessibility criteria, these events allowed the comparison between social contexts representing northern and southern European countries.

Data collection has been conducted within the LIFE TACKLE European project, which involved the Federazione Italiana Giuoco Calcio, Svenska Fotbollförbundet, the Federația Română de Fotbal, as well as a series of stadiums managers of professional football in Europe.

We directly collected data in stadiums just before football matches to observe how supporters elaborated pro-environmental messages in experimental conditions. The selected stadiums are among the more frequented ones in their countries,



FIGURE 3 Neutrally framed message: no perceived gain or loss for supporters.



FIGURE 4 Positively framed message: perceived gain for supporters.

which ensures the involvement of supporters in an immersive experience.

The matches took place between May 2019 and January 2020 (see Table 1 for details on dates, countries, matches and stadia).

Respondents were randomly selected among the local supporters. Groups of 10 volunteers per match, who received training on data collection and adequate dress code, including an official identification card issued by stadium managers, collected a total of 1423 valid responses. Ninety-four questionnaires resulted incomplete or unreliable, which means that after the completion of the questionnaire the respondents were not able to briefly describe the content of the proposed message.

3.2 | Design, sample and procedure

Respondents participated voluntarily in the survey after a short presentation of the task to be performed. They were told that the purpose of the research was to observe their reaction to a new information campaign in the stadium. No further details were given to reduce social desirability bias.

The authors provided incentives for successful participation, consisting of entering a drawing for free tickets. The completion time of the survey was 12 min on average.

Respondents participated in a 1×3 (pro-environmental messages: negatively framed, neutrally framed, positively framed) between-subjects experiment. First, respondents were given a printed questionnaire. Respondents filled out general information (age, gender, level of education, travel distance to the stadium and type of ticket held) as a first step. Then, they were asked to observe very carefully the environmental message printed on a high-quality A3 poster (see Figures 2–4 that represent, respectively, the negative, neutral and positive messages). Since the allocation of respondents to experimental groups was random, we can assume that all the aspects of the experimental conditions were held constant, except the proposed manipulation, which rules out random influences and helps isolate causal factors. Collecting data from different matches and

different countries ensured the heterogeneity of respondents and, thus, enabled the generalisation of the conclusions. After examining the message, respondents were asked to fill out the survey section that contained the measured variables used for analysis in this study. Finally, respondents who participated in the drawing for the free tickets entered their names on a separate form to ensure anonymity and that respondents' data were not collected in the same database as their names.

3.3 | Survey questionnaire and measures

This survey instrument includes six main constructs consisting of a total of 20 items. We measured each item on a 5-point Likert-type scale adapted from previous studies (see Table 2 for details).

A back-translation process (Craig & Douglas, 2005) was employed to ensure the development of comparable versions of the questionnaire in Italian and Swedish languages. We conducted a pre-testing on

TABLE 2 Survey questionnaire: constructs, items and literature references.

Construct	Item	Literature reference
Attitude towards Environmental Message (AEM)	<i>Look carefully at the following message. The message arouses:</i>	
	Positive impression (AEM1)	del Mar Garcíade los Salmones et al. (2013); MacKenzie and Lutz (1989)
	Pleasant impression (AEM2)	del Mar Garcíade los Salmones et al. (2013); MacKenzie and Lutz (1989)
	Favourable impression (AEM3)	del Mar Garcíade los Salmones et al. (2013); MacKenzie and Lutz (1989)
Pro-environmental behavioural intentions during sport matches (PBI)	<i>While at a soccer match, I am willing to:</i>	
	Recycling (PBI1)	Casper et al. (2014)
	Purchasing reusable/biodegradable cutlery (PBI2)	Casper et al. (2014)
	Purchasing gadgets or choreographic materials made with recycled materials (PBI3)	Adapted from Casper and Pfahl (2012)
Environmental values (EV)	Avoiding waste of food, water or other resources (PBI4)	Adapted from Casper and Pfahl (2012)
	<i>What is important to you:</i>	
	To protect the environment and natural resources (EV1)	Casper and Pfahl (2012)
	To respect the earth and live in harmony with other species (EV2)	Casper and Pfahl (2012)
Perceived Environmental Knowledge (PEK)	To prevent pollution (EV3)	Casper and Pfahl (2012)
	To fight climate change (EV4)	Adapted from Casper and Pfahl (2012)
	<i>I am well informed on how to properly:</i>	
	Carrying out separate collection (PEK1)	Adapted from Leonidou and Skarmeas (2017)
Perceived consumer effectiveness (PCE1) without environmental club commitment	Recognise recycled products (PEK2)	Adapted from Leonidou and Skarmeas (2017)
	Recognise products with sustainable packaging (PEK3)	Adapted from Leonidou and Skarmeas (2017)
	Recognise third-party environmental certifications (PEK4)	Adapted from Leonidou and Skarmeas (2017)
	<i>When I attend a soccer match:</i>	
Perceived consumer effectiveness (PCE2) with environmental club commitment	My environmentally friendly efforts are useless as long as other people refuse to collaborate (PCE1.1)	Ellen et al. (1991)
	There is not much that I can do individually to protect the environment (PCE1.2)	Ellen et al. (1991)
Perceived consumer effectiveness (PCE2) with environmental club commitment	<i>If my favourite football club implements sustainable initiatives:</i>	
	It will be up to me to decide whether to take environmentally friendly actions (PCE2.1)	Adapted from Kim and Choi (2005)
	It will be easier for me to take environmentally friendly actions (PCE2.2)	Adapted from Kim and Choi (2005)
	I will have the choice to take environmentally friendly actions (PCE2.3)	Adapted from Kim and Choi (2005)

10 respondents to ensure the effectiveness of the manipulations and the absence of text ambiguity.

3.4 | Measures

Table 3 reports the constructs' main statistics, their extremes, means, standard deviations, reliability measures (Cronbach's alpha), factor loadings and Kaiser–Meyer–Olkin test of sampling adequacy for a single factor confirmatory analysis among all the items.

Scale reliabilities exceed the recommended cut-off criteria, with a Cronbach's alpha $>.7$, and a sufficient sampling adequacy (Kaiser, 1974). Overall, the measures were appropriate for the purposes of the research (Hair et al., 2010).

3.5 | Pro-environmental messages

The negative message (666 respondents) recalls a tedious traffic jam with a very dirty stadium after a match as a procured loss coming from

TABLE 3 Variables' Cronbach's alpha and Kaiser–Meyer–Olkin test of sampling adequacy, items' factor loadings, extremes, means and standard deviations.

Variable (α Cronbach) [KMO test]	Items	Standardised factor loadings	Min	Max	Item average	Item standard deviation
AEM (.9474) [0.7734]	AEM1	0.9230	1	5	3.7294	1.2392
	AEM2	0.9036	1	5	3.5933	1.2258
	AEM3	0.9143	1	5	3.7597	1.2301
PBI (.8035) [0.7747]	PBI1	0.6847	1	5	4.2932	0.8995
	PBI2	0.7728	1	5	4.1125	0.9329
	PBI3	0.7148	1	5	3.9146	0.9866
	PBI4	0.6140	1	5	4.3548	0.8502
PCE1 (.7149) [0.5000]	PCE1.1	0.6600	1	5	4.0701	0.9830
	PCE1.2	0.6600	1	5	3.5369	1.2424
PCE2 (.7432) [0.6802]	PCE2.1	0.6061	1	5	4.0866	0.9974
	PCE2.2	0.6981	1	5	4.1466	0.9132
	PCE2.3	0.6856	1	5	4.1135	0.9693
EV (.9047) [0.8336]	EV1	0.8572	1	5	4.6145	0.7581
	EV2	0.8437	1	5	4.5558	0.7519
	EV3	0.8459	1	5	4.6150	0.7198
	EV4	0.7756	1	5	4.5498	0.7969
PEK (.8245) [0.7744]	PEK1	0.6214	1	5	4.1732	0.8880
	PEK2	0.8331	1	5	3.7733	1.0027
	PEK3	0.8205	1	5	3.6773	1.0259
	PEK4	0.6383	1	5	3.4241	1.1763

TABLE 4 Distribution of respondents age, gender, education, travel distance and stadium.

	Valid observations	Percentage per category					
Age	1404	<15	16–24	25–34	35–44	45–54	>55
		4.4%	25.4%	20.8%	15.2%	18.9%	15.3%
Gender	1367	Male			Female		
		69.6%			30.4%		
Education	1400	Elementary school	Middle school	High school	Bachelor's degree	Master's degree	PhD
		0.9%	8.3%	54.7%	9.4%	22.7%	3.0%
Travel distance	1398	<1 km	1–4 km	5–19 km	20–100 km	>100 km	
		5.3%	14.4%	35.5%	25.4%	19.4%	
Stadium	1423	Luigi Ferraris—Genoa		Stadio Olimpico—Rome		Friends Arena—Stockholm	
		35.5%		34.6%		29.9%	

not being committed to reducing the environmental impact of sports events (Figure 2).

A statement affirming that supporters who do not reduce the environmental impact of sports events do not love his/her city and stadium reinforces the negative framing effect.

The neutrally framed message (457 respondents) recalls a symbolic shot on target (i.e., a football ball in goal) together without any reinforcing statement but a neutral invitation to contribute to reducing the environmental impact of sports matches (Figure 3).

This message leverages a neutral call for responsibility, thus representing a reference point compared to the possibility of procuring a gain or a loss for supporters by reducing the environmental impact of sports events.

The positively framed message (300 respondents) recalls well-organised and efficient transport with happy families having a safe journey together and a waste collection system in a clean stadium (Figure 4), representing the procured gains for supporters from reducing the environmental impact of sporting events.

A positive statement claiming that reducing the environmental impacts of sports matches also means loving your stadium and your city reinforced the positive framing.

4 | RESULTS

We processed the data using descriptive statistical techniques, ANOVA and ANCOVA in STATA 17.

4.1 | Descriptive analysis

Table 4 provides the number of valid observations, means and standard deviations for age, gender, education, travel distance and stadium of respondents.

Despite the lack of official statistics regarding the characteristics of the supporters that usually attend matches in the involved stadiums, the stadium managers confirmed that the above distributions largely reflect their expectations. Furthermore, the heterogeneity of respondents in gender, education and distance further reduces the risk that results depend on the presence of hidden groups.

Table 5 shows the cross-distribution between environmental messages and the gender, age, distance travelled and education of the respondents. It offers details on the respondents' characteristics of the groups stemming from the message presentations at random, which reduces the risk of unobserved variables influencing the results.

To verify that we effectively neutralised differences among groups of respondents in concerning environmental values and perceived environmental knowledge and effectiveness, we performed one-way analysis of variance among treated groups for each of these variables. The non-significance of the Kruskal-Wallis test (Fienberg et al., 2007) confirmed our assumption.

4.2 | Effects of environmental messages in stadiums: Hypotheses testing

We assessed the effects of differently framed environmental messages within stadiums through a manipulation check. First, we performed a 1×3 analysis of variance (ANOVA) to investigate the influence of environmental messages on supporters' AEM (Hp1) and supporters' PBI (Hp2). Despite being unbalanced, the Levene's test (Carroll & Schneider, 1985) confirmed that the three groups did not violate the equal variance assumption. Table 6 shows the results of the one-way ANOVA test.

Considering that supporters in stadiums are strongly emotionally focused on the match and manipulations are thus expected to produce moderate effects, the model that refers to AEM explains a reasonable percentage of variation in the response ($R^2 = 0.13$). In this regard, it is also worth noting that supporters were provided by hand with A3 printed messages, which can be reasonably less impactful than intensely staring at real-scale posters throughout the stadium. Consequently, these results represent a clear signal of what more extensive communication campaigns might achieve.

In light of the above, the results show that supporters show a significantly more positive attitude towards the neutral message than towards the negative one ($p < .001$ and coefficient $b = 0.67$). While the supporters' attitude is even more positive towards the positive message than the negative message ($p < .001$ and coefficient $b = 0.72$), the relative distance between neutral-negative messages is much larger than the distance between neutral-positive messages.

TABLE 5 Cross-distribution between environmental messages and respondents' gender, age, travel distance and education.

Scenario	Respondents frequency		Gender		Age		Travel distance		Education	
	N	%	M	SD	M	SD	M	SD	M	SD
Negatively framed message	666	46.8	1.31	0.46	3.65	1.50	3.42	1.14	3.65	1.14
Neutrally framed message	457	32.12	1.29	0.45	3.57	1.51	3.40	1.03	3.53	1.10
Positively framed message	300	21.08	1.31	0.46	3.74	1.57	3.30	1.15	3.50	1.07

Age: 1 = <15; 2 = 16–24; 3 = 25–34; 4 = 35–44; 5 = 45–54; 6 = >55. Gender: 1 = Male; 2 = Female. Education: 1 = Elementary school; 2 = Middle school; 3 = High school; 4 = Bachelor's degree; 5 = Master's degree; 6 = Master; 7 = PhD. Travel distance: 1 = <1 km; 2 = 1–4 km; 3 = 5–19 km; 4 = 20–100 km; 5 = > 100 km. M = mean; SD = standard deviation.

TABLE 6 ANOVA estimates for supporters' Attitude towards Environmental Messages (AEM) and supporters' Pro-environmental Behavioural Intentions (PBI).

Scenario	AEM			PBI		
	Margin	Contrast	Standard error	Margin	Contrast	Standard error
Negatively framed message	-0.3680			-0.0021		
Neutrally framed message	0.3072	0.6753***	0.0560	-0.0333	-0.0312	0.0552
Positively framed message	0.3541	0.7222***	0.0637	0.0542	0.0563	0.0626
***: $p < .001$	$R^2 = 0.1303$			$R^2 = 0.0013$		
** : $p < .05$						
* : $p < .01$	$F(2,1351) = 101.23$			$F(2,1338) = 0.86$		

**FIGURE 5** Margins plot of supporters' attitude towards environmental messages with 95% confidence of interval.

This is confirmed by the margins plot of supporters' attitude towards environmental messages illustrated in Figure 5, which clearly reveals that supporters show a lower positive attitude towards the environmental message that induces the perception of losses (margin equal to -0.37) than towards the environmental message that induces the perception of gains (margin equal to 0.35), with respect to the reference point of neutral message (margin equal to 0.31).

Hp1 is thus supported, showing evidence that a negative message framing is more effective in producing a significant attitudinal difference than the positive message framing when the two messages are compared with a neutral situation.

Instead, regarding the one-way ANOVA estimates for PBI in stadiums, the results show that the model explains only a minimal share of its variance ($R^2 = 0.0013$).

The absence of statistically significant differences among the messages further confirms the lack of a significant relationship between the supporters' pro-environmental behavioural intentions and the elaboration of neutrally, positively or negatively framed

messages. **Hp2** is thus not supported. These results provide the first evidence of stadiums' peculiarities compared to other social contexts, such as retail shopping (Matthes et al., 2014) or tourism (Aliperti et al., 2018), where the environmental message has a significant influence on both attitudes and behavioural intentions. In particular, the absence of effects on PBI confirms that stadiums are basically places of suspension of values, interests and power relations where supporters are fully emotionally focused on the match (Didry & Giannelloni, 2019; García & Welford, 2015).

The analysis of the relationships between the different environmental messages and supporters' PCE helps to further disentangle the effect of environmental messages on supporters. Table 7 shows the results of the one-way ANOVA test for supporters' PCE, both without the condition of environmental club commitment (**Hp3a**) and with such condition (**Hp3b**).

The variance explained by the PCE1 model is low ($R^2 = 0.02$). Changes in PCE1 are therefore weakly linked to the type of environmental message processed by supporters within the stadium as

TABLE 7 ANOVA estimates for supporters' Perceived Consumer Effectiveness (PCE1 and PCE2).

Scenario	PCE1			PCE2		
	Margin	Contrast	Standard error	Margin	Contrast	Standard error
Negatively framed message	-0.1056			-0.0860		
Neutrally framed message	0.09185	0.1975***	0.0463	0.0269	0.1130*	0.0509
Positively framed message	0.0943	0.1999***	0.0528	0.1458	0.2318***	0.0578
***: $p < .001$	$R^2 = 0.0176$			$R^2 = 0.0123$		
** : $p < .05$	$F(2, 1348) = 12.05$			$F(2, 1343) = 8.39$		
* : $p < .01$						

TABLE 8 ANCOVA estimates for supporters' Environmental Values (EV) and supporters' Perceived Environmental Knowledge (PEK) in model PCE1 and model PCE2.

	PCE1			PCE2		
	Margin	<i>b</i>	Standard error	Margin	<i>b</i>	Standard error
EV		-0.3335***	0.0219		0.2349 ***	0.0230
PEK		0.9766***	0.0227		0.1626 ***	0.2352
0—Negatively framed message	-0.1228			-0.9010		
1—Neutrally framed message	0.0807	0.2036	0.0467	0.1911	0.1092	0.04852
2—Positively framed message	0.0931	0.2159***	0.0531	0.1360	0.2261***	0.0550
***: $p < .001$	$R^2 = 0.0316$			$R^2 = 0.1365$		
** : $p < .01$	$F(4, 1299) = 10.62$			$F(4, 1299) = 51.32$		
* : $p < .05$						

formulated in [Hp3a](#), which is thus supported. In line with the results of [Hp2](#), this result complements Baena (2018) suggesting that supporters in stadiums are hardly willing to individually commit to the environmental cause because they do not perceive the effectiveness of their behaviour at the individual level.

Also, the PCE2 model's variance is limited ($R^2 = 0.01$), suggesting that the direct relationship between environmental messages and the supporters' PCE is weak even when the favourite sports club shows pro-environmental commitment. In short, [Hp3b](#) is not fully confirmed. This result suggests that, in highly emotional places (Walker & Heere, 2011), the suspension of values, interests and power relations may not depend on the situational host's postures, which calls for more profound and systemic actions to reposition the place identity.

Concerning the effects' magnitude on PCE2, neutral and positive environmental messages on PCE2 are similar to those emerging from the ANOVA test with PCE1. In particular, the increase of *b* from the negative message to the neutral one is 0.11 with a significant $p < .05$, while from the negative to the positive one is 0.23 with a significant $p < .001$, confirms that messages framed positively are more effective than neutral or negative ones in stadiums.

An ANCOVA analysis for the PCE1 model and PCE2 model that includes environmental values (EVs) and perceived environmental knowledge (PEK) is presented in [Table 8](#).

Covariates only limitedly increase the PCE1 model's explanatory power ($R^2 = 0.03$), which means that the scarce impact of different environmental messages on the PCE in stadiums applies almost

universally to supporters when targeted as individuals, regardless of their different traits. Interestingly, the results also indicate that some respondents exhibit an aversion to incoherent pro-environmental messages from non-environmentally committed clubs, particularly among supporters with stronger environmental values. [Hp4a](#) is thus fully supported, reinforcing the results of [Hp3a](#).

In the case of the PCE2 model, instead, the explanatory power increases up to 13,65%. In particular, the supporters' PCE in everyday life is positively affected by positive framing effects when there is an environmental commitment of the club. Both the supporters' environmental values and perceived environmental knowledge have similar and statistically significant positive effects on the tendency to mimic the club's environmental commitment. Thus, [HP4b](#) is confirmed. This is a notable result since it confirms previous evidence that sports clubs are crucial role models in increasing the supporters' inclination to adopt sustainable behaviours (Casper et al., 2014; Inoue & Kent, 2012a; United Nations, 2022), when controlling for EVs and PEK.

5 | DISCUSSION

Our study relied on prospect theory to explore the framing effects of different environmental messages—positive, neutral and negative—in green marketing campaigns aimed at supporters in European professional football. Overall, our research suggests that it is worthwhile for

sports clubs to implement green marketing campaigns, but prudence is needed.

Our results show that stadiums are emotionally charged environments (Cho et al., 2013), and supporters are receptive to reducing the environmental impact of sports events when they share the same environmental values as their favourite club. This relation is especially true when supporters care about the environment outside stadiums (Casper et al., 2020; Trail & McCullough, 2020) and possess sufficient environmental knowledge (Bray et al., 2011; Testa et al., 2020).

Concerning behavioural intentions and perceived consumer effectiveness, supporters respond better to pro-environmental messages that make them feel proud of the gains, rather than messages that make them feel guilty or neutral. Stadiums are contexts where supporters are entirely focused on sports matches, suspend everyday life's norms and routines and are subsumed into a collective identity. Thus, environmental messages that inspire emotions in supporters that resonate with collective situational aspirations of gains seem more effective. In contrast, feelings of guilt or shame seem to clash with the collective priority placed on supporting the favourite club.

A possible alternative explanation looks at the fact that supporters are accustomed to receiving positive messages in stadiums before and during matches, such as updates on team performance or social responsibility issues. Even though environmental communication is relatively new in this context, our results suggest that a positive approach that emphasises collective gains and resonates with other social responsibility messages may be more effective in engaging supporters.

Besides showing that some club persuasion strategies are more effective than others in changing supporters' environmental behaviour in stadiums, our results reveal that supporters are emotionally affected by collective inertia also in the case of the club's commitment towards the environment. This is demonstrated by the fact that attitudes towards different messages did not directly translate into behavioural intentions in stadiums, which is coherent with previous research on supporters' collective identity (García & Welford, 2015; Giulianotti, 2002).

This evidence also confirms the presence of the well-known 'attitude-behaviour' gap (Boulstridge & Carrigan, 2000; Young et al., 2010), which in stadiums also applies to predictors of actual behaviours like behavioural intentions (Kollmuss & Agyeman, 2002). In this regard, the presence of a strong collective identity of supporters during sports matches (Didry & Giannelloni, 2019; Smelser, 2011) might contribute to turning stadiums into places where individual rationality and proactiveness do not flourish and individual pro-environmental intentions are reduced or even suspended. Given that in this context environmental messaging alone, especially if they recall everyday life, is ineffective, it should usefully evolve towards gamification approaches that are emotionally resonant with the sports event and the collective emotions in stadiums. To this end, it is worth noting that, as in other sectors, supporters may remain indifferent to green messages due to low environmental values (Casper et al., 2020; Trail & McCullough, 2020) or a low level of environmental knowledge

(Leonidou & Skarmeas, 2017; Mostafa, 2007). Thus, sports clubs might develop strategies to deliver pro-environmental contexts that reflect the supporters' mindset in stadiums. As an example, they might turn the achievement of environmental excellence into a collective aspiration.

Finally, our results show that the alignment between supporters' and sports clubs' values is relevant, and it is a source of pro-environmental motivations in everyday life among those supporters who believe in the environmental cause and possess adequate knowledge. This evidence suggests that sports organisations should usefully combine environmental strategies that focus on improving sports events' environmental performance with the ambition to be role models in educating supporters about environmental sustainability and shaping greener individual mindsets outside stadiums. In this regard, stimulating the emulation of pro-environmental clubs' commitment through the involvement of guiding supporters' communities (i.e., leaders who can act as role models for followers) might be an effective component of clubs' communication campaigns and an opportunity to build coherency between environmental messages and behaviours of sports clubs, which is crucial to avoid greenwashing practices that hinder the effectiveness of marketing campaigns (Chamorro et al., 2009; Nyilasy et al., 2014). In fact, our results, combined with previous literature, confirms that incoherency between in-stadium pro-environmental campaigns and the sports club's environmental commitment may disorient supporters and lead to counter-productive outcomes.

5.1 | Theoretical contributions

Prospect theory suggests that people's decisions are influenced by the way options are presented or 'framed' (Kahneman & Tversky, 1979). Framing effects refer to the phenomenon where the way information is presented can significantly affect how individuals perceive and make decisions (Cheng et al., 2011; White et al., 2011). According to the theory, individuals evaluate options based on subjective value functions rather than objective probabilities or outcomes, and are more sensitive to losses than gains (Abdellaoui et al., 2007; Schmidt & Zank, 2008).

Our study endeavours to make two contributions to prospect theory.

First, we show that supporters tend to evaluate alternative options based on collective gains and losses due to their tendency to behave as a group (Didry & Giannelloni, 2019; Wann & Branscombe, 1993), which diverges from the individual-level judgement suggested by prospect theory. This group behaviour sets supporters apart from traditional categories of consumers (Giulianotti, 2002), due to their strong emotional attachment towards their favourite sports clubs (Baena, 2018), which can generate emotional reactions towards everyday life problems when they are in stadiums. We thus contribute to prospect theory by emphasising the crucial role of group behaviour and emotional attachment in the decision-making processes of consumers who act in groups. We

suggest that these factors should be taken into account when analysing the effects of message framing to make more accurate predictions of group consumers' decisions.

Second, we show that compared to individual consumers who bear the procured loss themselves (Davis, 1995; Day et al., 2020), supporters' loss aversion is not as strong. While the attitudinal responses of supporters confirm the loss aversion tendency, supporters avert processing negative messages when they are immersed in the in-stadium mindset. Indeed, the role of sport clubs appears to be pivotal since they can influence the degree to which supporters identify with the team during matches, thus influencing the extent to which they perceive losses as personal losses. By fostering a strong sense of community and shared identity among supporters during matches, sports clubs can reduce the impact of individual loss aversion. We thus advance the conceptualisation of loss aversion in prospect theory by shedding light on the impact of social factors to consumers loss aversion, rather than being solely determined by individual preferences or rational calculations of costs and benefits.

6 | CONCLUSIONS

Our research provides evidence that using environmental messages in stadiums is different from using them in other traditional spheres of consumption. Consumers of sports events—that is, supporters—are part of a dynamic and dispersed social collective that supports the same favourite club and emphasises feelings of pride, identification and emotional attachment (Inoue et al., 2021; Walker & Kent, 2009; Wann & Branscombe, 1993). Thus, the traditional communication toolbox may not be effective, which is a significant problem since supporters are unlikely to adopt pro-environmental behaviours without the intervention of sports clubs.

6.1 | Managerial and theoretical implications

Environmental sustainability in the professional sports industry is a hot topic (Wall-Tweedie & Nguyen, 2018). European professional football is not an exception, given the duties stemming from its popularity. Consequently, several professional football clubs are adopting green practices to improve their environmental performance and reputation. To this end, they need to engage supporters to reduce the environmental impacts of professional football matches (Wicker, 2019). In fact, effective green marketing campaigns aimed at directly involving supporters in environmental behaviours are crucial for clubs to increase their possibility of carrying out successful environmental strategies.

Our results contribute to this field suggesting some possible communication approaches for the clubs' managers that aim at improving the effectiveness of environmental marketing in stadiums. In so doing, they complement Sun et al. (2021) rules for developing effective green marketing strategies by providing evidence of the peculiarities

that characterise highly emotional contexts where a customers' collective identity prevails.

First, our results reveal that clubs' managers should beware of replicating in-stadium green marketing campaigns that are adequate outside stadiums because the connection between attitude towards the message and behavioural intentions is highly situational.

Second, they should prepare fertile ground for green marketing in stadiums by leveraging their social influence to spread green values and knowledge among supporters in everyday life. Education is crucial in this regard.

Third, they should consider the importance of emotional sharing dynamics in shaping collective behaviours in stadiums and, thus, manipulate positive emotions via approaches that recall the same collective dimensions as, for example, the gamification of competitions to achieve green excellence among stadiums. Gamified experiences should inspire supporters via positive emotions.

In our effort to build theory, our study highlight that companies should differentiate their advertising strategy based on target customers acting individually or collectively. A 'one size fits all' approach to green marketing may not be effective in highly emotional contexts such as stadiums.

Hence, managers must be mindful of the situational context and tailor their communication strategies accordingly. This fact adds another dimension of investigation to the design of pro-environmental strategies environmental based on knowledge, environmental consciousness, and social norms. Moreover, differently from cases where companies should foster social identification among customers based on green behaviours (Bartels & Onwezen, 2014), supporters are an example of customers with an already defined social identification who are more likely to absorb green behaviours as a consequence of awareness raising strategies to be implemented far from highly emotional events. Therefore, when targeting customers with a prevailing collective identity, the timing of the strategy implementation is as important as its contents because situational emotions impede individual pro-environmental responsibilities.

6.2 | Policy implications

Concerning policy implications, our research supports the need to promote the involvement of sports clubs in the debate on sustainability. Supporters high in environmental values and knowledge are an essential asset for sports clubs that want to build strategies to engage supporters in pro-environmental behaviours in stadiums. This fact increases the responsibilities that sports clubs have towards society because it clearly shows that sports clubs also have to extend their sphere of influence to the everyday lives of supporters, assuming the responsibility to be role models through educating activities aimed at increasing the environmental awareness of supporters.

To support this role, governments can implement policies that encourage sports clubs to collaborate with schools, universities, and environmental organisations for educational programs, workshops and field trips that highlight the importance of environmental conservation

and sustainability. Funding can be provided to sports clubs to invest in sustainable infrastructure, such as energy-efficient lighting, water-saving systems, and sustainable transportation options. This can help reduce the environmental impact of sports events and encourage fans to adopt sustainable practices in their daily lives.

By involving sports clubs in the public debate on sustainability, governments can leverage their influence and expand their sphere of influence to the everyday lives of supporters. As role models, sports clubs have a responsibility to educate their fans on the importance of environmental conservation and sustainability, and by taking these actions, sports clubs can help create a more sustainable future for all.

6.3 | Limitations and future research

How to shape collective pro-environmental behaviours in stadiums is definitely an interesting yet underexplored research field that deserves further investigation. Despite shedding some light on it, our research, as with any empirical study, has some limitations. Even though we made considerable efforts to collect data from real supporters in real stadiums in different European countries, future studies might usefully complement our empirical investigation as follows.

First, we performed our data collection in stadiums that European National Football Associations consider representative at the European level. Despite that, the replication of the study in other geographical contexts could usefully confirm this assumption or, on the contrary, reveal peculiarities at the local level that deserve further investigation.

Second, the replication of our study in other sports might help better understand the importance of collective dynamics in the elaboration of ads. In particular, it would be useful to understand how results vary across samples with different characteristics in terms of collective identity. To this end, it would be beneficial to replicate the study in sports events where supporters are less involved.

Third, our experimental approach is proven effective to study the reactions to alternative advertising messages, but we were experimentally constrained to a cross-cutting measure of behavioural intentions. Thus, it might be useful to observe actual behaviours to disentangle further what determines the attitude-behaviour gap in stadiums. Using messages repeatedly and on a real scale (e.g., on screens and advertising boards) might help create adequate conditions for testing collective behavioural outcomes.

Fourth, it would be useful to compare traditional messages with non-conventional ones like those based on gamification, which are expected to generate measurable improvements in the alignment between the exposure to the message and the emotional experience in stadiums. Our study encourages scholars to continue exploring this field to assist sports clubs in unlocking their potential for greening sports and society.

ACKNOWLEDGEMENTS

Open Access Funding provided by Scuola Superiore Sant'Anna within the CRUI-CARE Agreement.

CONFLICT OF INTEREST

We have no known conflict of interests to disclose.

ORCID

Gianluca Gionfriddo  <https://orcid.org/0000-0001-8403-0757>

REFERENCES

- Abdellaoui, M., Bleichrodt, H., & Paraschiv, C. (2007). Loss aversion under prospect theory: A parameter-free measurement. *Management Science*, 53(10), 1659–1674. <https://doi.org/10.1287/mnsc.1070.0711>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (2012). In P. A. M. V. Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *The theory of planned behavior. Handbook of social psychological theories* (pp. 438–460). SAGE.
- Aliperti, G., Rizzi, F., & Frey, M. (2018). Cause-related marketing for disaster risk reduction in the tourism industry: A comparative analysis of prevention-and recovery-related campaigns. *Journal of Hospitality and Tourism Management*, 37, 1–10. <https://doi.org/10.1016/j.jhtm.2018.08.003>
- Antonetti, P., & Maklan, S. (2014). Feelings that make a difference: How guilt and pride convince consumers of the effectiveness of sustainable consumption choices. *Journal of Business Ethics*, 124(1), 117–134. <https://doi.org/10.1007/s10551-013-1841-9>
- Babiak, K., & Wolfe, R. (2009). Determinants of corporate social responsibility in professional sport: Internal and external factors. *Journal of Sport Management*, 23(6), 717–742. <https://doi.org/10.1123/jsm.23.6.717>
- Baena, V. (2018). The importance of CSR practices carried out by sport teams and its influence on brand love: The real Madrid Foundation. *Social Responsibility Journal*, 14, 61–79. <https://doi.org/10.1108/SRJ-11-2016-0205>
- Barberis, N. C. (2013). Thirty years of prospect theory in economics: A review and assessment. *Journal of Economic Perspectives*, 27(1), 173–196. <https://doi.org/10.1257/jep.27.1.173>
- Bartels, J., & Onwezen, M. C. (2014). Consumers' willingness to buy products with environmental and ethical claims: The roles of social representations and social identity. *International Journal of Consumer Studies*, 38(1), 82–89. <https://doi.org/10.1111/ijcs.12067>
- Bauer, H. H., Stokburger-Sauer, N. E., & Exler, S. (2008). Brand image and fan loyalty in professional team sport: A refined model and empirical assessment. *Journal of Sport Management*, 22(2), 205–226. <https://doi.org/10.1123/jsm.22.2.205>
- Blumrodt, J., Bryson, D., & Flanagan, J. (2012). European football teams' CSR engagement impacts on customer-based brand equity. *Journal of Consumer Marketing*, 29, 482–493. <https://doi.org/10.1108/07363761211274992>
- Boulstridge, E., & Carrigan, M. (2000). Do consumers really care about corporate responsibility? Highlighting the attitude-behaviour gap. *Journal of Communication Management*, 4, 355–368. <https://doi.org/10.1108/eb023532>
- Bray, J., Johns, N., & Kilburn, D. (2011). An exploratory study into the factors impeding ethical consumption. *Journal of Business Ethics*, 98(4), 597–608. <https://doi.org/10.1007/s10551-010-0640-9>
- Brennan, L., & Binney, W. (2010). Fear, guilt, and shame appeals in social marketing. *Journal of Business Research*, 63(2), 140–146. <https://doi.org/10.1016/j.jbusres.2009.02.006>
- Bromiley, P. (2010). Looking at prospect theory. *Strategic Management Journal*, 31(12), 1357–1370. <https://doi.org/10.1002/smj.885>
- Carroll, R. J., & Schneider, H. (1985). A note on Levene's tests for equality of variances. *Statistics and Probability Letters*, 3, 191–194. [https://doi.org/10.1016/0167-7152\(85\)90016-1](https://doi.org/10.1016/0167-7152(85)90016-1)

- Casper, J. M., McCullough, B. P., & Pfahl, M. E. (2020). Examining environmental fan engagement initiatives through values and norms with intercollegiate sport fans. *Sport Management Review*, 23(2), 348–360. <https://doi.org/10.1016/j.smr.2019.03.005>
- Casper, J. M., & Pfahl, M. E. (2012). Environmental behavior frameworks of sport and recreation undergraduate students. *Sport Management Education Journal*, 6(1), 8–20. <https://doi.org/10.1123/smej.6.1.8>
- Casper, J. M., Pfahl, M. E., & McCullough, B. P. (2014). Intercollegiate sport and the environment: Examining fan engagement based on athletics department sustainability efforts. *Journal of Issues in Intercollegiate Athletics*, 7(August 2015), 65–91.
- Casper, J. M., Pfahl, M. E., & McCullough, B. P. (2017). Is going green worth it? Assessing fan engagement and perceptions of athletic department environmental efforts. *Journal of Applied Sport Management*, 9(1), 11. <https://doi.org/10.18666/JASM-2017-V9-I1-7690>
- Chamorro, A., Rubio, S., & Miranda, F. J. (2009). Characteristics of research on green marketing. *Business Strategy and the Environment*, 18(4), 223–239. <https://doi.org/10.1002/bse.571>
- Chang, Y., & Inoue, Y. (2021). Spectator emotions in predicting psychological vigor: Emotional meta experience and affect valuation perspectives. *Sport Management Review*, 24(4), 594–619. <https://doi.org/10.1080/14413523.2021.1880759>
- Cheng, T., Woon, D. K., & Lynes, J. K. (2011). The use of message framing in the promotion of environmentally sustainable behaviors. *Social Marketing Quarterly*, 17(2), 48–62. <https://doi.org/10.1080/15245004.2011.570859>
- Chingching, C. (2011). Feeling ambivalent about going green: Implications for green advertising practices. *Journal of Advertising*, 40(Winter), 19–31. <https://doi.org/10.2753/JOA0091-3367400402>
- Cho, Y. N., Thyroff, A., Rapert, M. I., Park, S. Y., & Lee, H. J. (2013). To be or not to be green: Exploring individualism and collectivism as antecedents of environmental behavior. *Journal of Business Research*, 66(8), 1052–1059. <https://doi.org/10.1016/j.jbusres.2012.08.020>
- Craig, C. S., & Douglas, S. P. (2005). *International marketing research*. John Wiley & Sons.
- Daddi, T., Todaro, N. M., De Giacomo, M. R., & Frey, M. (2018). A systematic review of the use of organization and management theories in climate change studies. *Business Strategy and the Environment*, 27(4), 456–474. <https://doi.org/10.1002/bse.2015>
- Daddi, T., Todaro, N. M., Iraldo, F., & Frey, M. (2021). Institutional pressures on the adoption of environmental practices: A focus on European professional football. *Journal of Environmental Planning and Management*, 1–23. <https://doi.org/10.1080/09640568.2021.1927679>
- Davis, J. J. (1995). The effects of message framing on response to environmental communications. *Journalism & Mass Communication Quarterly*, 72(2), 285–299. <https://doi.org/10.1177/107769909507200203>
- Day, S., Godsell, J., Masi, D., & Zhang, W. (2020). Predicting consumer adoption of branded subscription services: A prospect theory perspective. *Business Strategy and the Environment*, 29(3), 1310–1330. <https://doi.org/10.1002/bse.2435>
- del Mar Garciade los Salmones, M., Dominguez, R., & Herrero, A. (2013). Communication using celebrities in the non-profit sector: Determinants of its effectiveness. *International Journal of Advertising*, 32(1), 101–119. <https://doi.org/10.2501/IJA-32-1-101-119>
- Didry, N., & Giannelloni, J. L. (2019). Collective emotional dynamics: Perspectives for marketing. *Recherche et Applications en Marketing (English Edition)*, 34(4), 99–124. <https://doi.org/10.1177/2051570719887824>
- Dingle, G., & Mallen, C. (2020). Sport and education for environmental sustainability. In *Sport and environmental sustainability* (pp. 243–260). Routledge. <https://doi.org/10.4324/9781003003694-13>
- Ellen, P. S., Wiener, J. L., & Cobb-Walgreen, C. (1991). The role of perceived consumer effectiveness in motivating environmentally conscious behaviors. *Journal of Public Policy & Marketing*, 10(2), 102–117. <https://doi.org/10.1177/074391569101000206>
- Fienberg, S. E., Stigler, S. M., & Tanur, J. M. (2007). The William Kruskal Legacy: 1919–2005. *Statistical Science*, 22, 255–261. <https://doi.org/10.1214/088342306000000420>
- Fraj, E., & Martinez, E. (2006). Environmental values and lifestyles as determining factors of ecological consumer behaviour: An empirical analysis. *Journal of Consumer Marketing*, 23, 133–144. <https://doi.org/10.1108/07363760610663295>
- Frick, J., Kaiser, F. G., & Wilson, M. (2004). Environmental knowledge and conservation behavior: Exploring prevalence and structure in a representative sample. *Personality and Individual Differences*, 37(8), 1597–1613. <https://doi.org/10.1016/j.paid.2004.02.015>
- Friedman, M., & Savage, L. J. (1948). The utility analysis of choices involving risk. *Journal of Political Economy*, 56(4), 279–304. <https://doi.org/10.1086/256692>
- García, B., & Welford, J. (2015). Supporters and football governance, from customers to stakeholders: A literature review and agenda for research. *Sport Management Review*, 18(4), 517–528. <https://doi.org/10.1016/j.smr.2015.08.006>
- Giulianotti, R. (2002). Supporters, followers, fans, and flaneurs: A taxonomy of spectator identities in football. *Journal of Sport and Social Issues*, 26(1), 25–46. <https://doi.org/10.1177/0193723502261003>
- Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate data analysis*. 7th Edition. Pearson.
- Hartmann, P., Ibáñez, V. A., & Sainz, F. J. F. (2005). Green branding effects on attitude: Functional versus emotional positioning strategies. *Marketing Intelligence & Planning*, 23, 9–29. <https://doi.org/10.1108/02634500510577447>
- Heutel, G. (2019). Prospect theory and energy efficiency. *Journal of Environmental Economics and Management*, 96, 236–254. <https://doi.org/10.1016/j.jeem.2019.06.005>
- Higgins, E. T. (2000). Making a good decision: Value from fit. *American Psychologist*, 55(11), 1217–1230. <https://doi.org/10.1037/0003-066X.55.11.1217>
- Higgins, E. T. (2012). Regulatory focus theory. *Handbook of Theories of Social Psychology: Volume 1*, 1, 483–504. <https://doi.org/10.4135/9781446249215.n24>
- Holmes, R. M. Jr., Bromiley, P., Devers, C. E., Holcomb, T. R., & McGuire, J. B. (2011). Management theory applications of prospect theory: Accomplishments, challenges, and opportunities. *Journal of Management*, 37(4), 1069–1107. <https://doi.org/10.1177/0149206310394863>
- Inoue, Y., & Kent, A. (2012a). Sport teams as promoters of pro-environmental behavior: An empirical study. *Journal of Sport Management*, 26(5), 417–432. <https://doi.org/10.1123/jsm.26.5.417>
- Inoue, Y., & Kent, A. (2012b). Investigating the role of corporate credibility in corporate social marketing: A case study of environmental initiatives by professional sport organizations. *Sport Management Review*, 15(3), 330–344. <https://doi.org/10.1016/j.smr.2011.12.002>
- Inoue, Y., Lock, D., Gillooly, L., Shipway, R., & Swanson, S. (2021). The organizational identification and well-being framework: Theorizing about how sport organizations contribute to crisis response and recovery. *Sport Management Review*, 25(1), 1–30.
- Inoue, Y., Mahan, J. E. III, & Kent, A. (2013). Enhancing the benefits of professional sport philanthropy: The roles of corporate ability and communication strategies. *Sport Management Review*, 16(3), 314–325. <https://doi.org/10.1016/j.smr.2012.10.003>
- James, J. D. (2011). Attitude toward advertising through sport: A theoretical framework. *Sport Management Review*, 14(1), 33–41. <https://doi.org/10.1016/j.smr.2009.12.002>

- 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. <https://doi.org/10.1007/s10551-014-2316-3>
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263–292. <https://doi.org/10.2307/1914185>
- Kaiser, F. G., Wölfling, S., & Fuhrer, U. (1999). Environmental attitude and ecological behaviour. *Journal of Environmental Psychology*, 19(1), 1–19. <https://doi.org/10.1006/jevp.1998.0107>
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31–36. <https://doi.org/10.1007/BF02291575>
- Kellison, T. B., & Kim, Y. K. (2014). Marketing pro-environmental venues in professional sport: Planting seeds of change among existing and prospective consumers. *Journal of Sport Management*, 28(1), 34–48. <https://doi.org/10.1123/jsm.2011-0127>
- Kelman, H. C. (1958). Compliance, identification, and internalization three processes of attitude change. *Journal of Conflict Resolution*, 2(1), 51–60. <https://doi.org/10.1177/002200275800200106>
- Kim, S., & Manoli, A. E. (2023). From horizontal to vertical relationships: How online community identification fosters sport fans' team identification and behavioural intentions. *International Journal of Sports Marketing and Sponsorship*, 24(1), 1–19. <https://doi.org/10.1108/IJMS-09-2021-0188>
- Kim, S. B., & Kim, D. Y. (2014). The effects of message framing and source credibility on green messages in hotels. *Cornell Hospitality Quarterly*, 55(1), 64–75. <https://doi.org/10.1177/1938965513503400>
- Kim, Y., & Choi, S. M. (2005). Antecedents of green purchase behavior: An examination of collectivism, environmental concern, and PCE. *ACR North American Advances*.
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3), 239–260. <https://doi.org/10.1080/13504620220145401>
- Leonidou, C. N., & Skarneas, D. (2017). Gray shades of green: Causes and consequences of green skepticism. *Journal of Business Ethics*, 144(2), 401–415. <https://doi.org/10.1007/s10551-015-2829-4>
- Levin, I. P., & Gaeth, G. J. (1988). How consumers are affected by the framing of attribute information before and after consuming the product. *Journal of Consumer Research*, 15(3), 374–378. <https://doi.org/10.1086/209174>
- Lin, S. T., & Niu, H. J. (2018). Green consumption: Environmental knowledge, environmental consciousness, social norms, and purchasing behavior. *Business Strategy and the Environment*, 27(8), 1679–1688. <https://doi.org/10.1002/bse.2233>
- Locke, E. A., & Latham, G. P. (2006). New directions in goal-setting theory. *Current Directions in Psychological Science*, 15(5), 265–268. <https://doi.org/10.1111/j.1467-8721.2006.00449.x>
- Lutz, R. J., MacKenzie, S. B., & Belch, G. E. (1983). *Attitude toward the ad as a mediator of advertising effectiveness: Determinants and consequences*. ACR North American Advances.
- MacIntosh, E., Apostolis, N., & Walker, M. (2013). Environmental responsibility: Internal motives and customer expectations of a winter sport provider. *Journal of Sport & Tourism*, 18(2), 99–116. <https://doi.org/10.1080/14775085.2013.838145>
- MacKenzie, S. B., & Lutz, R. J. (1989). An empirical examination of the structural antecedents of attitude toward the ad in an advertising pre-testing context. *Journal of Marketing*, 53(2), 48–65. <https://doi.org/10.1177/002224298905300204>
- Mair, J., Chien, P. M., Kelly, S. J., & Derrington, S. (2023). Social impacts of mega-events: A systematic narrative review and research agenda. *Journal of Sustainable Tourism*, 31(2), 538–560. <https://doi.org/10.1080/09669582.2020.1870989>
- Malenka, D. J., Baron, J. A., Johansen, S., Wahrenberger, J. W., & Ross, J. M. (1993). The framing effect of relative and absolute risk. *Journal of General Internal Medicine*, 8(10), 543–548. <https://doi.org/10.1007/BF02599636>
- Mallen, C., & Chard, C. (2011). A framework for debating the future of environmental sustainability in the sport academy. *Sport Management Review*, 14(4), 424–433. <https://doi.org/10.1016/j.smr.2010.12.002>
- Mallen, C., Stevens, J., Adams, L., & McRoberts, S. (2010). The assessment of the environmental performance of an international multi-sport event. *European Sport Management Quarterly*, 10(1), 97–122. <https://doi.org/10.1080/16184740903460488>
- Matthes, J., Wonneberger, A., & Schmuck, D. (2014). Consumers' green involvement and the persuasive effects of emotional versus functional ads. *Journal of Business Research*, 67(9), 1885–1893. <https://doi.org/10.1016/j.jbusres.2013.11.054>
- McCullough, B. P. (2013). Identifying the influences on sport spectator recycling behaviours using the theory of planned behaviour. *International Journal of Sport Management and Marketing*, 14(1–4), 146–168. <https://doi.org/10.1504/IJSM.2013.060631>
- McCullough, B. P., Orr, M., & Kellison, T. (2020). Sport ecology: Conceptualizing an emerging subdiscipline within sport management. *Journal of Sport Management*, 34(6), 509–520. <https://doi.org/10.1123/jsm.2019-0294>
- McCullough, B. P., Pfahl, M. E., & Nguyen, S. N. (2016). The green waves of environmental sustainability in sport. *Sport in Society*, 19(7), 1040–1065. <https://doi.org/10.1080/17430437.2015.1096251>
- Mostafa, M. M. (2007). Gender differences in Egyptian consumers' green purchase behaviour: The effects of environmental knowledge, concern and attitude. *International Journal of Consumer Studies*, 31(3), 220–229. <https://doi.org/10.1111/j.1470-6431.2006.00523.x>
- Muehling, D. D. (1987). An investigation of factors underlying attitude-toward-advertising-in-general. *Journal of Advertising*, 16(1), 32–40. <https://doi.org/10.1080/00913367.1987.10673058>
- Nelson, K. M., Bauer, M. K., & Partelow, S. (2021). Informational nudges to encourage pro-environmental behavior: Examining differences in message framing and human interaction. *Frontiers in Communication*, 5, 610186. <https://doi.org/10.3389/fcomm.2020.610186>
- Nyilasy, G., Gangadharbatla, H., & Paladino, A. (2014). Perceived green-washing: The interactive effects of green advertising and corporate environmental performance on consumer reactions. *Journal of Business Ethics*, 125(4), 693–707. <https://doi.org/10.1007/s10551-013-1944-3>
- Oliver, R. L. (1974). Expectancy theory predictions of salesmen's performance. *Journal of Marketing Research*, 11(3), 243–253. <https://doi.org/10.1177/002224377401100302>
- Paswan, A., Guzmán, F., & Lewin, J. (2017). Attitudinal determinants of environmentally sustainable behavior. *Journal of Consumer Marketing*, 34, 414–426. <https://doi.org/10.1108/JCM-02-2016-1706>
- Rizomyliotis, I., Poulis, A., Konstantoulaki, K., & Giovanis, A. (2021). Sustaining brand loyalty: The moderating role of green consumption values. *Business Strategy and the Environment*, 30(7), 3025–3039. <https://doi.org/10.1002/bse.2786>
- Schmidt, U., & Zank, H. (2008). Risk aversion in cumulative prospect theory. *Management Science*, 54(1), 208–216. <https://doi.org/10.1287/mnsc.1070.0762>
- Shonk, D. J., & Weiner, J. F. (2021). *Sales and revenue generation in sport business*. Human Kinetics.
- Smallbone, T. (2005). How can domestic households become part of the solution to England's recycling problems? *Business Strategy and the Environment*, 14(2), 110–122. <https://doi.org/10.1002/bse.442>
- Smelser, N. J. (2011). *Theory of collective behavior*. Quid Pro Books.
- Sun, H., Teh, P. L., & Linton, J. D. (2018). Impact of environmental knowledge and product quality on student attitude toward products

- with recycled/remanufactured content: Implications for environmental education and green manufacturing. *Business Strategy and the Environment*, 27(7), 935–945. <https://doi.org/10.1002/bse.2043>
- Sun, Y., Luo, B., Wang, S., & Fang, W. (2021). What you see is meaningful: Does green advertising change the intentions of consumers to purchase ecolabeled products? *Business Strategy and the Environment*, 30(1), 694–704. <https://doi.org/10.1002/bse.2648>
- Testa, F., Iovino, R., & Iraldo, F. (2020). The circular economy and consumer behaviour: The mediating role of information seeking in buying circular packaging. *Business Strategy and the Environment*, 29(8), 3435–3448. <https://doi.org/10.1002/bse.2587>
- Testa, F., Iraldo, F., Vaccari, A., & Ferrari, E. (2015). Why ecolabels can be effective marketing tools: Evidence from a study on Italian consumers. *Business Strategy and the Environment*, 24(4), 252–265. <https://doi.org/10.1002/bse.1821>
- Thaler, R. (1980). Toward a positive theory of consumer choice. *Journal of Economic Behavior & Organization*, 1(1), 39–60. [https://doi.org/10.1016/0167-2681\(80\)90051-7](https://doi.org/10.1016/0167-2681(80)90051-7)
- Todaro, N. M., McCullough, B., & Daddi, T. (2022). Stimulating the adoption of green practices by professional football organisations: A focus on stakeholders' pressures and expected benefits. *Sport Management Review*, 26(1), 1–25.
- Trail, G. T., & McCullough, B. P. (2020). Marketing sustainability through sport: Testing the sport sustainability campaign evaluation model. *European Sport Management Quarterly*, 20(2), 109–129. <https://doi.org/10.1080/16184742.2019.1580301>
- Trendafilova, S., Babiak, K., & Heinze, K. (2013). Corporate social responsibility and environmental sustainability: Why professional sport is greening the playing field. *Sport Management Review*, 16(3), 298–313. <https://doi.org/10.1016/j.smr.2012.12.006>
- Trendafilova, S., McCullough, B., Pfahl, M., Nguyen, S. N., Casper, J., & Picariello, M. (2014). Environmental sustainability in sport: Current state and future trends. *Global Journal on Advances Pure and Applied Sciences*, 3(1), 9–14.
- Trendafilova, S., & McCullough, B. P. (2018). Environmental sustainability scholarship and the efforts of the sport sector: A rapid review of literature. *Cogent Social Sciences*, 4(1), 1467256. <https://doi.org/10.1080/23311886.2018.1467256>
- Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, 5(4), 297–323. <https://doi.org/10.1007/BF00122574>
- United Nations. (2022). Addressing climate change through sport. Department of Economic and Social Affairs. Policy Brief n° 128.
- Von Neumann, J., & Morgenstern, O. (2007). Theory of games and economic behavior. In *Theory of games and economic behavior*. Princeton university press.
- Walker, M., & Heere, B. (2011). Consumer attitudes toward responsible entities in sport (CARES): Scale development and model testing. *Sport Management Review*, 14(2), 153–166. <https://doi.org/10.1016/j.smr.2010.08.001>
- Walker, M., & Kent, A. (2009). Do fans care? Assessing the influence of corporate social responsibility on consumer attitudes in the sport industry. *Journal of Sport Management*, 23(6), 743–769. <https://doi.org/10.1123/jsm.23.6.743>
- Wall-Tweedie, J., & Nguyen, S. N. (2018). Is the grass greener on the other side? A review of the Asia-Pacific sport industry's environmental sustainability practices. *Journal of Business Ethics*, 152(3), 741–761. <https://doi.org/10.1007/s10551-016-3320-6>
- Wann, D. L., & Branscombe, N. R. (1993). Sports fans: Measuring degree of identification with their team. *International Journal of Sport Psychology*, 24(1), 1–17.
- White, K., MacDonnell, R., & Dahl, D. W. (2011). It's the mind-set that matters: The role of construal level and message framing in influencing consumer efficacy and conservation behaviors. *Journal of Marketing Research*, 48(3), 472–485. <https://doi.org/10.1509/jmkr.48.3.472>
- Wicker, P. (2019). The carbon footprint of active sport participants. *Sport Management Review*, 22(4), 513–526. <https://doi.org/10.1016/j.smr.2018.07.001>
- Yarimoglu, E., & Binboga, G. (2019). Understanding sustainable consumption in an emerging country: The antecedents and consequences of the ecologically conscious consumer behavior model. *Business Strategy and the Environment*, 28(4), 642–651. <https://doi.org/10.1002/bse.2270>
- Young, W., Hwang, K., McDonald, S., & Oates, C. J. (2010). Sustainable consumption: Green consumer behaviour when purchasing products. *Sustainable Development*, 18(1), 20–31.

How to cite this article: Gionfriddo, G., Rizzi, F., Daddi, T., & Iraldo, F. (2023). The impact of green marketing on collective behaviour: Experimental evidence from the sports industry. *Business Strategy and the Environment*, 32(8), 5349–5367. <https://doi.org/10.1002/bse.3420>