

The Promotion of Plant-Based Diets Among Sport Fans

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TABLE OF CONTENT

Acknowledgments..... II

List of Tables..... V

List of Figures VI

Abbreviations..... VII

Abstract VIII

1 Introduction 13

1.1 MOTIVATION AND AIM 14

1.2 STRUCTURE OF THE DISSERTATION 19

2 The Role of Plant-Based Diets for Sustainable Development in Sports 24

2.1 ENVIRONMENTAL BENEFITS OF PLANT-BASED DIETS: WHY SPORTS IS NO EXCEPTION 24

2.2 OVERVIEW OF SPORT ECOLOGY RESEARCH 25

2.3 SPECTATOR SPORT VENUES AND THEIR CONCESSION STANDS: A PLACE TO PROMOTE
PLANT-BASED DIETS? 27

**3 Theoretical Background on the Promotion of Plant-Based Diets in Sport Team
Contexts..... 30**

3.1 VALUES WORK PROCESS FRAMEWORK TO ASSESS ORGANIZATIONAL IMPLEMENTATIONS
AND THEIR DOWNSTREAM RELATIONS ON CONSUMERS 32

3.2 AWARENESS-TO-ACTION CONTINUUM TO ASSESS CONSUMER RESPONSES 35

3.3 BEHAVIORAL REASONING THEORY TO CAPTURE CONCESSION STAND MANAGERS’
BARRIERS AND FACILITATORS 38

4 Methodology 40

4.1 ESSAY 1 41

4.2 ESSAY 2..... 43

4.3 ESSAY 3..... 45

5 Essays.....	47
5.1 ESSAY 1 – THE ROLE OF ORGANIZATIONAL VALUES FOR SUSTAINABLE DEVELOPMENT: THE CASE OF FOREST GREEN ROVERS AND THE PROMOTION OF PLANT-BASED DIETS.....	47
5.2 ESSAY 2 – SPORT TEAMS’ PROMOTION OF PLANT-BASED FOOD CONSUMPTION AMONG FANS	48
5.3 ESSAY 3 – REASONS FOR AND AGAINST THE PROVISION OF PLANT-BASED DIETS AT SPORT VENUES: THE PERSPECTIVE OF CATERING MANAGERS OF GERMAN BUNDESLIGA TEAMS	49
6 General Conclusion	51
6.1 THEORETICAL IMPLICATIONS	55
6.2 PRACTICAL IMPLICATIONS.....	58
6.3 LIMITATIONS AND FUTURE RESEARCH DIRECTIONS	61
References	63
Appendix	80

List of Tables

Table 1. Overview of study characteristics. 22

Table 2. Summary of the main findings of the conducted studies. 52

List of Figures

Figure 1. Overview of the applied theoretical perspectives and constructs.	31
Figure 2. Overview of the theoretical constructs and how they are related.	32
Figure 3. Values work theoretical model.	34
Figure 4. Awareness to Action Continuum in Environmental Education.	36
Figure 5. Behavioral reasoning framework.	39

Abbreviations

BRT = Behavioral Reasoning Theory

CSR = Corporate social responsibility

e.g. = for example (exempli gratia)

FGR = Forest Green Rovers

FIFA = Fédération Internationale de Football Association

TPB = Theory of Planned Behavior

TRA = Theory of Reasoned Action

VBN = Value-Belief-Norm Theory

UN = United Nations

WHO = World Health Organization

Abstract

Increasing the consumption of plant-based diets is an important part of reducing people's individual carbon footprint and fighting climate change. While the environmental impacts of different food behaviors have been researched, and barriers and benefits of plant-based diets have been studied at the individual level, there is a research gap on why, how, and in what ways organizations can influence the eating behaviors of individuals. The goal of this dissertation is to address this research gap within the sport sector. It explores various factors that may make fans adopt plant-based diets in their daily life. Additionally, the thesis aims to explore the reasons why sports organizations do or do not provide plant-based diets at sport venues from the perspective of managers responsible for catering. Study 1 and Study 2 were conducted to assess the association between sports organizations' promotion of plant-based diets and fans' adoption of plant-based diet behaviors. In Study 1, a qualitative analysis of various documents regarding Forest Green Rovers—an English soccer team and pioneer in providing plant-based food options to fans and athletes—was conducted to see how the organization has managed to incorporate sustainable values into its value system and how these values work across the organization and stakeholders. In Study 2, it was tested whether internalization of (sustainable) values mediates the association of a past change in eating behavior toward plant-based diets and the future intention to eat plant-based diets. The findings of the qualitative study show how the club managed to establish sustainable values, and the results of a fan survey show that internalization of sustainable team values by fans positively mediates this relationship. Study 3 and Study 4 investigate the association between fans' awareness of pro-environmental activities of sports organizations and fans' plant-based food consumption via value internalization as a first mediator. As a second mediator, fan-team personality match is modeled. The results of fan surveys, using correlational (Study 3) and experimental designs (Study 4), show that fan-team personality match (but not value internalization) mediates the relation, particularly at low levels of team identification. In Study 5, managers of sports organizations and catering companies

responsible for catering at sport venues were interviewed to explore the reasons for and against promoting and offering plant-based diet options at their venues. Interviews with 13 managers were conducted and analyzed. In the analysis, various barriers and facilitators to provide plant-based food options at sport venues were identified. The study also explores how the facilitators can be leveraged (e.g., via a stronger engagement of fans in plant-based diet activities to improve the fan-team fit and to authentically signal sustainability efforts to fans) and how barriers can be overcome (e.g., via informing fans about benefits about plant-based diets and allowing them to taste and try out such offerings at sport venues) with strategic and operational management actions. The findings of this dissertation are discussed against the background of findings from previous research in the field of environmental research in sport management. They extend current theoretical models by investigating determinants and mechanisms that were not explored yet regarding the adoption of pro-environmental behaviors and researching underlying reasons why sport organizations promote plant-based diets at their venues. In addition, practical implications are highlighted that help sport organizations promote plant-based diet options in a sport context, such as applying targeted marketing strategies and promoting plant-based diet offerings based on dominant fan groups in specific sport venue areas (e.g., family areas vs. standing area). The limitations, which are discussed in the thesis, are helpful in guiding future research on plant-based food consumption in sports.

German Abstract

Der vermehrte Konsum von pflanzenbasierten Lebensmitteln ist ein wichtiger Bestandteil, um den individuellen CO₂ Fußabdruck von Menschen zu senken und dem Klimawandel Einhalt zu gebieten. Während die Umwelteinflüsse verschiedener Lebensmittel und Essverhalten erforscht sind und zudem auch Barrieren und Nutzen pflanzenbasierter Ernährung auf individuellem Level tiefgreifend untersucht wurden, gibt es eine Forschungslücke, wieso und auf welche Weise Organisationen das Essverhalten von Stakeholdern und Individuen beeinflussen können. Ziel dieser Dissertation ist es, diese Forschungslücken zu schließen. Im Rahmen des Sportkontexts wird erforscht, welche Faktoren dazu führen, dass Fans pflanzenbasierte Ernährungsweisen übernehmen. Zudem werden in dieser Arbeit, basierend auf der Perspektive von Managern verantwortlich für das Catering in Sportstadien, Gründe erforscht, warum Sportorganisationen pflanzenbasierte Essensangebote anbieten beziehungsweise nicht anbieten. Studie 1 und Studie 2 wurden durchgeführt, um den Zusammenhang zwischen der Förderung pflanzenbasierter Essenoptionen durch Sportorganisationen und der Übernahme pflanzenbasierter Ernährungsverhalten von Fans zu untersuchen. In Studie 1 wurde eine qualitative Auswertung verschiedener Dokumente zu den Forest Green Rovers—ein englisches Fußballteam und Vorreiter in der Bereitstellung pflanzenbasierter Lebensmittel für Fans und Sportler—unternommen, um zu erkennen, wie der Verein es geschafft hat, nachhaltige Werte in seinem Wertesystem zu integrieren und wie diese Werte im Verein und bei Stakeholder wirken. In Studie 2 wurde getestet, ob die Internalisierung von (nachhaltigen) Werten die Verbindung, zwischen einer vergangenen Änderung des Essverhaltens in Richtung pflanzenbasierter Ernährung und der zukünftigen Absicht sich pflanzenbasiert zu ernähren, vermittelt. Die Ergebnisse der qualitativen Studie zeigen auf, wie der Verein es geschafft hat nachhaltige Werte zu etablieren. Die Ergebnissen der Fanumfrage signalisieren, dass die Internalisierung von nachhaltigen Vereinswerten durch Fans die oben beschriebene Verbindung positiv vermittelt. In den Studien 3 und 4 wurden der Zusammenhang

zwischen dem Fan Bewusstsein über umweltfreundliche Aktivitäten von Sportorganisationen und Fans pflanzenbasierten Essverhalten untersucht. Dabei wurde die Internalisierung von Werten als erster Mediator und Fan-Team Persönlichkeitsübereinstimmung als zweiter Mediator betrachtet. Die Ergebnisse von Fanumfragen mit Hilfe von korrelativen (Studie 3) und experimentellen Designs (Studie 4) zeigen, dass Fan-Team Persönlichkeitsübereinstimmung (aber nicht die Internalisierung von Werten) die beschriebene Verbindung vermittelt, insbesondere bei geringer Identifikation mit der Sportorganisation. In Studie 5 wurden Manager von Sportorganisationen und Catering Unternehmen, verantwortlich für das Essensangebot in Sportstadien, interviewt, um herauszufinden, welche Gründe für und gegen die Förderung und das Angebot pflanzenbasierter Essenoptionen im Stadion sprechen. Insgesamt wurden Interviews mit 13 Managern durchgeführt und analysiert. In der Analyse wurden diverse Barrieren und Unterstützer für pflanzenbasierter Essenangebote im Stadion herausgearbeitet. Die Studie untersucht zudem, wie Unterstützer wirksam genutzt werden können (z.B. durch eine stärkere Einbindung von Fans in pflanzenbasierte Essensaktivitäten von Sportorganisationen, um die Fan-Team Persönlichkeitsübereinstimmung zu verbessern und Nachhaltigkeitsbemühungen von Sportorganisationen Fans gegenüber authentisch zu signalisieren) und wie Barrieren überwunden werden können (z.B. durch die Bereitstellung von Informationen über die Vorteile von pflanzenbasierten Essensangeboten und der Möglichkeit, solche Angebote in Sportstätten auszuprobieren), unter Einbeziehung strategischer und operativer Management Aktivitäten. Die Ergebnisse dieser Dissertation werden auf Grundlage von Erkenntnissen im Bereich der Umweltforschung im Sportmanagement diskutiert. Sie erweitern aktuelle theoretische Modelle, indem sie bisher nicht untersuchte Determinanten und Mechanismen für die Übernahme umweltfreundlicher Verhaltensweisen untersuchen und Gründe erforschen, warum Sportorganisationen pflanzenbasierte Essensangebote in Ihren Sportstätten bewerben. Zudem werden praktische Implikationen herausgestellt, welche Sport Organisationen dabei helfen pflanzenbasierte Essenoptionen im Sportkontext zu fördern, wie

die Anwendung gezielter Marketingstrategien und die Bewerbung bestimmter pflanzenbasierte Essenangeboten basierend auf den vorherrschenden Fangruppen in bestimmten Bereichen in Sportstätten (z.B. Familienbereiche vs. Stehplatzbereiche). Die Limitation, die in der Arbeit diskutiert werden, sind hilfreich, um zukünftige Forschungen im Bereich von pflanzenbasiertem Essverhalten im Sport anzuleiten.

1 Introduction

Changing food behaviors toward more pro-environmental and plant-based diets is crucial to reduce an individual's environmental impact while simultaneously promoting health (Meyer & Reguant-Closa, 2017; Segovia-Siapco & Sabaté, 2019; World Health Organization, 2021). However, people often face various types of barriers that hinder them from changing diet behaviors toward more plant-based food options like the perceived lack of taste, health conception, and eating traditions (Graça et al., 2019; Laila et al., 2021; Lea et al., 2006; Perez-Cueto et al., 2022; Pohjolainen et al., 2015; Varela et al., 2022). To achieve change in this domain, socially responsible organizations promote plant-based diets. Especially as the lack of information about benefits was named a reason to not consume plant-based diets (Fehér et al., 2020; Lea et al., 2006; Pohjolainen et al., 2015), organizations have the possibility to impact food decisions of people for the better.

This is also true for organizations in the sport sector where stakeholders behind sport games and events reach out to millions of people on a regular basis (for example, more than 65 million people watched live sports digitally in the United States in 2022, Statista Research Department, 2023). In the past years, several sport organizations implemented sustainability initiatives to reduce their carbon footprint while simultaneously influencing fans' behavioral intentions by allowing fans to learn about, participate in, and experience sustainable alternatives in several domains (for example, see Henly & Krenza, 2015; McCullough et al., 2016; Trendafilova et al., 2013). However, a detailed understanding of the promotion of plant-based diets among fans and what specific factors may have an influence on the adoption of sustainable food behaviors is missing. Additionally, knowledge of sport organizations' underlying reasons why they promote or do not promote plant-based diets at sport venues is needed. This dissertation addresses these points and provides a better empirical understanding of whether and how professional sport organizations can promote plant-based diets and influence stakeholder's eating behaviors.

1.1 Motivation and Aim

The topic of the environmental impact of different food consumption behaviors is a salient research issue nowadays. It was found that a reduction in meat and animal product consumption is crucial to protect the environment and fight climate change but also to promote personal health (Godfray et al., 2018; Graça et al., 2019; Meyer & Reguant-Closa, 2017; World Health Organization, 2021). For example, in the European Union, animal food production (e.g. meat, eggs, dairy products) has with on average more than 80% of dietary emissions the highest share (Sandstroem et al., 2018). Further, consuming plant-based diets can reduce relevant emissions by more than 56% (Springmann et al., 2018). Although it is known that, compared to animal products, plant-based food options have a much lower impact on the environment (Sandstroem et al., 2018; Springmann et al., 2018; Tukker & Jansen, 2006) and, in addition, are healthier (Meyer & Reguant-Closa, 2017; World Health Organization, 2021), many people prefer animal and meat products. While it is important to investigate the environmental consequences of different (ecological) behaviors (e.g., Kaiser et al., 2003), it is also fundamental to understand how to engage individuals in plant-based and sustainable food consumption behaviors and what mechanism may influence the adoption of plant-based diets (Abrahamse, 2020). Particularly with a worldwide increasing population, meat consumption has to be reduced to lower negative effects on the environment (Godfray et al., 2018). Researchers found differences between customer segments regarding their openness toward and reasons for and against consuming meat alternatives, highlighting the possibility of marketing plant-based diets to specific consumer segments by implementing interventions to achieve change in consumption behaviors (Goetze & Brunner, 2021; Knaapila et al., 2022).

Sustainability also became a topic of interest in sports. For example, the United Nations acknowledges the specific role of sport and the environment with the realization of the Sports for Climate Action, which is signed by various well-known actors in the sport sector (United Nations, n.d.). It has been observed that professional sport organizations, professional sport

leagues, and sport event organizers have taken over responsibility and started to change their activities to engage stakeholders in social and sustainable initiatives (Babiak & Trendafilova, 2011; Babiak & Wolfe, 2009). They started to implement pro-environmental initiatives, green games, and other activities to reduce their carbon footprint but also to have an influence on stakeholders, fans, and spectators.

In sport management research, an own research stream and the sub-discipline sport ecology was founded due to the increasing interest in the topic (McCullough et al., 2020). It was found that sport organizations can make use of their sustainability activities and strategically market them to stakeholders (Walker & Kent, 2013). Previous studies further explored, for instance, a trickle-down effect of fans' pro-environmental practices looking at waste reduction, recycling, traveling, energy and water use and conservation as well as daily pro-environmental behaviors (Casper et al., 2014, 2017; Inoue & Kent, 2012a, 2012b; McCullough, 2013; McCullough & Cunningham, 2011; Trail & McCullough, 2021). The establishment of pro-environmental fan engagement initiatives and the effective communication of such activities can be seen as a starting point to increase fans' awareness about the benefits of pro-environmental behaviors and to influence fans' behavioral intentions to act more sustainable in everyday life (Babiak & Trendafilova, 2011; Babiak & Wolfe, 2009; Casper et al., 2020; Casper et al., 2017; Trail & McCullough, 2021).

Moreover, various insights into determinants and mechanisms that help to explain the association between the promotion of pro-environmental initiatives and behavioral change were investigated. For example, Trail & McCullough, 2020 developed the sport sustainability campaign evaluation model to better understand how sport organizers can communicate and market sustainable campaigns toward fans and influence their behaviors. Inoue & Kent (2012a) applied Kelman's social influence theory and found that value internalizations positively mediates the relation between environmental practices of a sport organization and fans' intention to support the initiative as well as their daily pro-environmental behaviors. Casper et

al. (2017) found that fans expect athletic departments to implement pro-environmental activities, that such activities can influence fan's behaviors, and that there are differences between highly and lowly identified fan groups, with lowly identified fans being more open toward pro-environmental activities. A successful establishment of these activities is often linked to the integration of educational elements about pro-environmental behaviors (Casper et al., 2014; Inoue & Kent, 2012a, 2012b; Trendafilova et al., 2013) and to the emotions evoked by sport organizations (Babiak & Wolfe, 2009).

However, to my best knowledge, research on the promotion of plant-based diets by sport organizations and fans' willingness to adopt plant-based diet behaviors is scarce. Only recently, research focused specifically on the association between health promotion orientation of sport clubs and fruit and vegetable consumption by members (Heikkilä et al., 2023), food provision as part of health promotion at sport stadiums (Parry et al., 2019), and on gender differences on pro-environmental eating behaviors among sport fans (Scharfenkamp & Wicker, 2023). This is interesting as sport organizers start to provide more plant-based and pro-environmental food options. For example, the German league organizers of the first- and second-division require teams in the licensing process to implement pro-environmental strategies, including catering and sustainable food management (DFL, 2022), and mega sport events like the Olympic Games and the European Championships in soccer start to provide more healthy, sustainable and plant-based food options (Paris 2024, 2023; UEFA, 2023). Henly and Krenza (2015) further give an overview of sport organizations focusing on and providing pro-environmental and plant-based food options to their fans. In this direction, Forest Green Rovers are noteworthy as they were named the "greenest football club" in the world by FIFA (2022), with one part of their sustainability approach being to serve only vegan food options at their venue. They became the first vegan football club worldwide and received the vegan trademark from the Vegan Society (2017).

Therefore, investigating determinants and mechanisms of how sport organizations can influence fans' pro-environmental diet behaviors is important. Moreover, investigating determinants and mechanisms that were not considered before will help to better understand how different theoretical constructs play together, what effects they have, why people are willing to adapt their food consumption behaviors as well as if there are differences between fan groups. Additionally, a better understanding of sport organizations' reasons for and against the provision of plant-based diets and what barriers they may face is crucial. While several studies investigated facilitators and barriers for plant-based diets on an individual level (for example, Havermans et al., 2021; Lea et al., 2006; Perez-Cueto et al., 2022; Pohjolainen et al., 2015), it is important to better understand how organizations can implement facilitators and reduce barriers toward providing plant-based diets at sport venues. Underlying organizational reasons for and against the implementation and promotion of pro-environmental initiatives have yet to be discovered and will help sport organizers to enhance planning and implementing management actions on a strategic and operational level.

For example, it is not fully understood in how far organizational values may influence fans' behaviors if fans start to internalize team values in their value system. Do fans perceive that an organization built up sustainable values? Do fans start to internalize these values in their value system? Do fans perceive a match between their values and team values, or are there differences between their characteristics and traits? And what effects do these sustainable values have on fan behaviors? Moreover, a better understanding of why sport organizations provide or not provide plant-based diets at their sport venues is needed. If there are various benefits of plant-based diets, why do managers responsible for catering at sport organizations not change their food offerings? Do managers face certain constraints to not provide plant-based diets?

This dissertation aims to contribute to prior research by uncovering the association between the awareness of pro-environmental food initiatives and people's willingness to adopt

plant-based food consumption behaviors, investigating determinants and mechanisms that are at play, and shedding light on underlying organizational reasons for and against providing plant-based diets to fans and spectators. The research questions of this thesis are as follows:

Research question 1: What role do sustainable organizational values play in the promotion of plant-based diets?

Research question 2: What mechanisms explain differences in the association between the promotion of pro-environmental food initiatives and people's plant-based diet behaviors between highly and lowly identified fans?

Research question 3: What are managers' predominant reasons for and against providing plant-based diets at sport venues?

Essay 1 focuses on research question 1. By conducting a mixed-method case study and exploring how Forest Green Rovers markets its sustainability activities, promotes plant-based food offerings, and was able to achieve a discourse around these topics, it was investigated how their organizational sustainable values work through the organization and toward fans. Also, the mediating role of organizational sustainable values in the association of diet change toward plant-based food options and plant-based diet consumption intentions was examined.

Essay 2 focuses on research questions 1 and 2. Two quantitative studies surveying fans of sport teams that implemented pro-environmental activities were conducted (Study 3, correlative, n=799, 12 teams; Study 4, experimental, n=356, one team). The association between fan awareness about pro-environmental food initiatives and plant-based diet consumption of fans was investigated, considering team value internalization and fan-team personality match as mediators and different levels of fan identification as the moderator. The findings of the study provide insights into how value internalization and fan-team personality perception, based on the levels of team identification, are associated with the relation between fan awareness and reported plant-based diet consumption.

Essay 3 focuses on research question 3. By interviewing managers of sport teams and catering companies responsible for catering at sport venues of German first-division soccer league, facilitators and barriers toward providing plant-based diets were explored. The findings give insights into the decision-making process of managers and will help organizations overcome potential barriers toward plant-based diet provision and leverage facilitators that could help to promote plant-based options.

By addressing these research questions, several contributions are made. First, by investigating and revealing mediators and moderators on the relationship between the awareness of team initiatives regarding the promotion of plant-based diets and plant-based diet consumption, theoretical models and frameworks are extended. These findings provide researchers with new insights into why, how, and under which circumstances people are willing to start to adopt more plant-based diets. Second, by exploring reasons for and against providing plant-based diets, specific facilitators and barriers toward promoting such options are revealed, leading to a better understanding of the decision-making processes of managers. From a practical perspective, this dissertation gives insights into the determinants and mechanisms of how organizations can influence fans' sustainable eating behaviors. It helps managers to successfully implement plant-based diet initiatives and strategically plan and market plant-based diets toward fans. Overall, the dissertation enhances the understanding of how to influence people's plant-based diet behaviors and successfully promote plant-based diet initiatives toward customers, aspects that are crucial for sustainable development for sport organizations.

1.2 Structure of the Dissertation

This dissertation is structured in six chapters. Chapter 1 gives an introduction to the topic of the thesis, outlines the objectives and motivation, and gives an overview of the studies conducted.

Chapter 2 provides an overview of the rising topic of sport ecology and the role plant-based diets play in sustainable development. On the one hand, an excursion to sport ecology and how the topic of environmental sustainability gained importance in the sport sector, including the topic of plant-based diet promotion at sport venues, is given. On the other hand, benefits of plant-based diets for the environment but also for personal health are described.

Chapter 3 gives a summary of the theoretical concepts relevant to this dissertation. It stresses the most important theoretical tenets applied in this work and highlights the relevance of these theoretical concepts for promoting plant-based diets in a sport context.

Chapter 4 outlines and describes the applied empirical studies of this dissertation. Qualitative studies, including a document analysis and expert interviews, and quantitative studies, including correlational and experimental research designs, were applied to answer the research questions of this dissertation (see Table 1 for an overview of the essays and studies of Chapter 5).

Chapter 5 presents empirical evidence linked to the theoretical concepts of Chapter 3. In Chapter 5.1, Essay 1 focuses on the role of sustainable organizational values regarding the promotion of plant-based diet consumption among fans. In the first part of the case study (Study 1), a document analysis was conducted, applying Gehman et al.'s (2013) values work process framework to explore the development of sustainable organizational values at Forest Green Rovers as well as how they market their values through the organization and toward fans. In the second part (Study 2), a survey was distributed to fans of Forest Green Rovers to investigate the mediating role of team value internalization on the association between past change in eating behaviors and fans' intention to eat plant-based diets in the future.

In Chapter 5.2, Essay 2 investigates the association between fan awareness about pro-environmental food initiatives of sport teams and reported plant-based diet consumption of fans. Building upon the Awareness-to-Action Continuum (Barnes, 2013), it was examined how and when fan awareness related to plant-based diet behaviors. Two studies (Study 3 and Study 4)

with moderated mediation models were conducted to test whether the named association is mediated by team value internalization (adopting organizational values in one's own value system, Kelman, 2006) and fan-personality match (perceived match of own and organizational traits and characteristics, Kristof, 1996) and moderated by the level of team identification (i.e., low vs. high levels of identification with an organization, Inoue & Kent, 2012a; Mael & Ashforth, 1992).

In Chapter 5.3, Essay 3 explores sport teams' catering manager's prevalent reasons for and against promoting plant-based diets at sport venues (Study 5). By applying a behavioral reasoning perspective (Westaby, 2005), various barriers and benefits regarding the provision of plant-based diets were mapped out. Expert interviews with managers responsible for catering at German Bundesliga venues were conducted to gain a deeper understanding of why sport teams do promote or do not promote plant-based diets.

In Chapter 6, the dissertation closes with a summary of the findings, gives theoretical and practical implications, and outlines limitations and future research topics.

Table 1. *Overview of study characteristics.*

	Essay 1		Essay 2		Essay 3
	Study 1	Study 2	Study 3	Study 4	Study 5
Main Goals	Explore how sustainable organizational values developed at FGR and how their organizational sustainable values among fans	Assess the role of internalization of team values on the association between the adoption of plant-based diets and future intentions to eat plant-based diets	Test whether, how, and when fans' awareness about pro-environmental diet initiatives of sport teams is related to plant-based diet consumption by fans, by assessing the mediating role of team value internalization, fan-personality match, and the moderating role of team identification	Test whether the association investigated in study 3 holds true if levels of team identification (low vs. high) and mission statement (sport vs. sustainability) are manipulated	Explore the reasons for and against providing plant-based diets at sport venues from a catering manager perspective
Statistical Method	Deductive-inductive approach for analyzing case studies	Regression-based mediation analysis	Regression-based moderated mediation analysis	Regression-based moderated mediation analysis	Thematic analysis
Design	Document analysis	Correlational survey-based research design	Correlational survey-based research design	Experimental survey-based research design	Expert interviews
Sample size	44 documents, 56,057 words	107	799	356	13

(Continued).

(Continued).

	Essay 1		Essay 2		Essay 3
	Study 1	Study 2	Study 3	Study 4	Study 5
Con-structs under con-si-deration	- Dealing with pockets of concern - Knotting local concerns into action networks - Performing values practices - Circulating values discourse - Overcoming value constraints to build a holistic value system	- Change toward plant-based diets - Internali-zation of team values - Environ-mental personal norms - Intention to eat plant-based diets	- Fan awareness about pro-environ-mental food initiatives - Fan-team personality match - Internali-zation of team values - Team identification - Attitudes toward pro-environ-mental food consumption - Subjective norms regarding pro-environ-mental food consumption - Plant-based food consumption	- Fan awareness about pro-environ-mental food initiatives - Fan-team personality match -Internali-zation of team values - Team identification (manipu-lation) - Mission statement (manipu-lation) - Attitudes toward pro-environ-mental food consumption - Subjective norms regarding pro-environ-mental food consumption - Plant-based food consumption	- Reasons for providing plant-based diets - Reasons against providing plant-based diets
Location	United Kingdom; Europe	United Kingdom	Germany, United Kingdom, United States	United States	Germany (German Bundesliga)

Note. FGR = Forest Green Rovers.

2 The Role of Plant-Based Diets for Sustainable Development in Sports

Changing consumption patterns toward plant-based diets is considered crucial for sustainable development as the reduction of animal product consumption lowers an individual's impact on the environment regarding emissions, carbon footprint, resources needed, and energy usage (Carlsson-Kanyama & González, 2009; Gerbens-Leenes & Nonhebel, 2002; Segovia-Siapco & Sabaté, 2019; Springmann et al., 2018). While the topic of sport and the environment is gaining importance (McCullough et al., 2020), and a trickle-down effect in correlational studies of sport team's pro-environmental activities on fan's pro-environmental practices was found regarding traveling, recycling, and waste reduction (Casper et al., 2014, 2017; McCullough & Cunningham, 2011; Trail & McCullough, 2021), more knowledge is needed on the role of how sport organizations plant-based diet activities may influence fans' eating behaviors and in how far sport organizations and venues can promote plant-based diets for sustainable development.

2.1 Environmental Benefits of Plant-Based Diets: Why Sports Is No Exception

Plant-based food behaviors contain diets that reduce or exclude animal products while comprising organic and sustainable products (for example, including fruits and vegetables, using local and seasonal products, reducing meat and dairy products, relying on locally grown products; Meyer & Reguant-Closa, 2017; Reisch et al., 2013; Sedlacko et al., 2013; Segovia-Siapco & Sabaté, 2019; World Health Organization, 2021) and are an important tool to tackle climate change. The World Health Organization (2021) defines plant-based diets as diets that “constitute a diverse range of dietary patterns that emphasize foods derived from plant sources coupled with lower consumption or exclusion of animal products” (p. 1). Springmann et al. (2018) found that consuming pro-environmental and plant-based diets can reduce relevant emissions by up to 56%, compared to the consumption of meat and animal-based foods, which require more energy and resources (Carlsson-Kanyama, 2009; Gerbens-Leenes & Nonhebel,

2002). Also, other studies highlight the negative impact of animal food production and consumption on the environment (Sandstroem et al., 2018; Tukker & Jansen, 2006). While many people do not want to change their eating behaviors due to factors like eating habits, tradition, price, enjoyment of meat, lack of awareness about benefits of plant-based diets or health conceptions (Fehér et al., 2020; Havermans et al., 2021; Lea et al., 2006; Pohjolainen et al., 2015; Reisch et al., 2013), changing consumption patterns toward plant-based diets have not just a positive impact on the environment but also on personal health (for example, plant-based diets can help reducing risks to develop certain diseases; Bublitz et al., 2022; Meyer & Reguant-Closa, 2017; Segovia-Siapco & Sabaté, 2019; World Health Organization, 2021).

In the past ten years, sport events and sport organizations started to focus more strongly on the topic of sustainability (e.g., McCullough, Pelcher, et al., 2020; Trendafilova et al., 2013). Several sport organizations implemented plant-based, healthy, and sustainable diet options at sport venues (Henly & Krenza, 2015; Parry et al., 2019), allowing fans to try out plant-based options. Providing more plant-based diets could have long-term effects on fans' eating behaviors as fans were found to base their food consumption decisions at sport venues on childhood experiences which are often linked to consuming unhealthy and meat-based options when visiting sport games (Koenigstorfer, 2018). Changes toward plant-based and sustainable diet consumption are also important from a sport team and an athlete's perspective. Healthy and sustainable nutrition is a crucial aspect of enhancing sporting performance and is therefore becoming more important regarding the food provision of sport teams, institutions, and events (Meyer & Reguant-Closa, 2017). Thus, sport is no exception but could play a crucial role in giving people a better understanding of the benefits of plant-based diets.

2.2 Overview of Sport Ecology Research

Sport ecology is a growing subdiscipline in sport management and focuses on the relation between the natural environment and sport, including individuals and organizations.

While research started to investigate the relations between sport and the environment several years ago, sport ecology brings together the different efforts researchers made in regard to the topic of sport and environment (McCullough et al., 2020). It captures the increasing importance of the topics of sports' influence on the environment, but also how sport is impacted by environmental changes and connects different areas of interest regarding research in environmental sustainability in the sports sector (Mallen, 2017; McCullough et al., 2020; Trendafilova & McCullough, 2018). Scholars in the field focused on various topics like how sport organizations may engage stakeholders in pro-environmental initiatives and influence their sustainable behaviors (e.g., Casper et al., 2014; Casper et al., 2017; Casper et al., 2021; Inoue & Kent, 2012a, 2012b; McCullough, 2013; McCullough & Cunningham, 2011; Trail & McCullough, 2018, 2020, 2021), social responsibility of sport organizations (e.g., Sartore-Baldwin & Walker, 2011; Walker & Heere, 2011; Walker & Kent, 2009), the relation between climate change and sports (e.g., Orr & Inoue, 2019; Orr et al., 2022), factors for sustainable behaviors of non-profit sport club members (e.g., Thormann & Wicker, 2021a), communication of sustainability activities by sport organizations websites (e.g., Ciletti et al., 2010; Mallen et al., 2013), carbon footprint and environmental impact of active sportspeople, sport tourists, fans, spectators, sport events, and sports in general (e.g., Collins & Flynn, 2008; Collins & Roberts, 2017; Dolf & Teehan, 2015; Wicker, 2018; Wicker, 2019; Wilby et al., 2023), sport club members and sport team fans willingness to pay for pro-environmental activities (Greenhalgh & Drayer, 2020; Thormann & Wicker, 2021b), barriers of sport organizations toward implementing pro-environmental activities (e.g., Casper & Pfahl, 2015), reasons to adopt pro-environmental actions (e.g., Babiak & Trendafilova, 2011; Trendafilova et al., 2013), health promotion orientation of sport clubs (Heikkilä et al., 2023) and differences in pro-environmental diet behaviors among male and female sport fans (Scharfenkamp & Wicker, 2023). These various research streams highlight the necessity to better understand how sport

organizations can make use of their facilities to promote pro-environmental and plant-based diets among their fans, a crucial aspect of lowering an individual's environmental impact.

2.3 Spectator Sport Venues and their Concession Stands: A Place to Promote Plant-Based Diets?

The ecological footprint of sport spectators was found to be significantly higher (up to eight times) when visiting sport events compared to daily life (Collins & Flynn, 2008). This is linked to the point that most fans and spectators relate watching sport games to consuming meat-based, unhealthy, and fast-food (Ireland & Watkins, 2010; Parry et al., 2019; Parry et al., 2017; Parry & Richards, 2022), which are often based on childhood experiences made at sport events (Koenigstorfer, 2018). Moreover, sport fans are generally not allowed to bring their own food but can only consume what is available at concession stands due to security reasons, and these options are mainly unhealthy and not sustainable (Parry & Richards, 2022; Piggin et al., 2019). Thereby, current food offerings and practices at sport venues can be considered an inhibitor regarding the promotion of sustainable behaviors (Parry et al., 2017; Williams & Williams, 2013).

However, sport venues can also allow fans and spectators to try out healthier and plant-based food options and educate them about the benefits of such diets (Parry et al., 2019; Parry et al., 2017). Henly and Krenza (2015) display several sport venue cases where sustainable and healthy food options and practices were integrated into food provision. In particular, as sport games and events are visited and followed by a large audience on a regular basis (for example, German Bundesliga games were visited by more than 13 million fans and English Premier League by more than 15 million fans in 2022/2023, Transfermarkt.de, 2023a, 2023b), organizers and managers of sport venues and events can engage a mass of people in pro-environmental activities and influence their intentions to act more sustainable (Babiak & Trendafilova, 2011; Babiak & Wolfe, 2009; Trail & McCullough, 2021). Especially as sport

teams have the societal responsibility to act sustainably and enhance healthy behaviors, providing plant-based and healthy diets can be seen as a tool to do so (Parry et al., 2019; Parry & Richards, 2022). This can further be considered important as more women and children visit game days who often have different consumption patterns and demand more healthy and sustainable food options compared to male visitors (Ireland & Watkins, 2010; Lagaert & Roose, 2018; Parry et al., 2017; Scharfenkamp & Wicker, 2023). Moreover, it was found that fruit and vegetable consumption was positively associated with a regular nutrition discussion of coaches with sport club members (especially women) (Heikkilä et al., 2023), highlighting the possible impact sport organizations can have on stakeholders. At sport venues, sport organizations have the possibility to inform and give fans a better understanding of healthy and plant-based food options by incentivizing and allowing fans to experience such food options (Henly & Krenza, 2015; Parry et al., 2019). This can also help to overcome typical barriers fans may face toward plant-based diets like traditions or habits (Ireland & Watkins, 2010; Koenigstorfer, 2018; Parry et al., 2019). Thereby, sport organizations can help to close the attitude-behavioral intention gap regarding sustainable food consumption (Vermeir & Verbeke, 2006).

To do this, sport organizers can focus on facilitators for plant-based diet consumption, which were explored in previous studies on an individual level, like environmental, health-related, or nutritional benefits, to promote such food options (for examples, see Fehér et al., 2020; Knaapila et al., 2022; Laila et al., 2021; Lea et al., 2006). Additionally, as sport organizations often have contracts with food sponsors and are therefore bound to sell exclusive food and beverage items (Cornwell & Koenigstorfer, 2017; Merkle & Golding, 2020), they can rework their offerings with existing partners or look for new partners to promote more healthy and sustainable food options.

One aspect to consider regarding the promotion of plant-based diets at sport venues is the difference in team identification levels of fans and, thereby, the focus on specific areas and fan groups within venues. While Inoue and Kent (2012a) detected no differences between

highly (vs. lowly) identified fan group's intention to engage in pro-environmental activities, Casper et al. (2017) found that lowly-identified fans are more open to supporting and engaging in pro-environmental activities of sport organizations (see also Sutton et al., 1997). Therefore, it is important to find out where and how to promote plant-based food options among different fan groups.

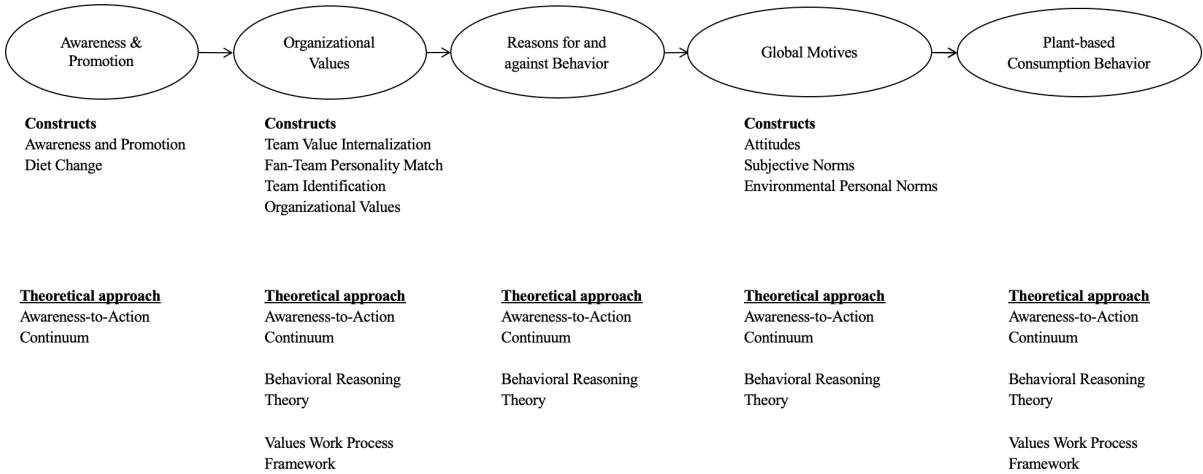
3 Theoretical Background on the Promotion of Plant-Based Diets in Sport Team

Contexts

In the past decades, a variety of approaches and theories were developed and evolved to explain behavioral choices of individuals. They were applied in several fields and extended our theoretical as well as practical knowledge of why individuals behave in certain ways, how individual's behaviors can be influenced and in how far different behaviors have an impact on the environment (for example, see Theory of Planned Behavior, Ajzen, 1991; Theory of Reasoned Action, Ajzen & Fishbein, 1980; Awareness-to-Action Continuum in environmental education, Barnes, 2013; Theory of Values Work, Gehman et al., 2013; life cycle assessments of (ecological) behaviors, Kaiser et al., 2003; knowledge about ecological behaviors, Kaiser & Fuhrer, 2003; Social Influence Theory, Kelman, 1958; Kelman, 2006; person-organization fit, Kristof, 1996; Value-Belief-Norm Theory, Stern, 2000; Stern et al., 1999; Social Identity Theory, Tajfel & Turner, 1986; Behavioral Reasoning Theory, Westaby, 2005).

In the sport sector, empirical studies applied various theoretical and conceptual models to better understand the influence of pro-environmental activities of sport organizations on stakeholder behaviors in the fields of recycling, waste reduction, and waste management, traveling and mobility, energy and resource used (for example, Value-Belief-Norm Theory, Casper et al., 2014; Social Influence Theory, Inoue & Kent, 2012a; social marketing, Inoue & Kent, 2012b; community-based social-marketing, Martin et al., 2015; TPB, McCullough & Cunningham, 2011; internal and external constraints, Trail & McCullough, 2018; sport sustainability campaign evaluation model, Trail & McCullough, 2020; Trail & McCullough, 2021). However, there is a lack of research regarding sport organizations' influence on pro-environmental and plant-based diet behaviors of fans and what factors may influence fans' food choices. Therefore, different determinants and mechanisms of how sport organizations may affect stakeholders' food consumption behaviors are examined in the present study. Especially as changes in diet behaviors are difficult to achieve, it is important to find out how organizations

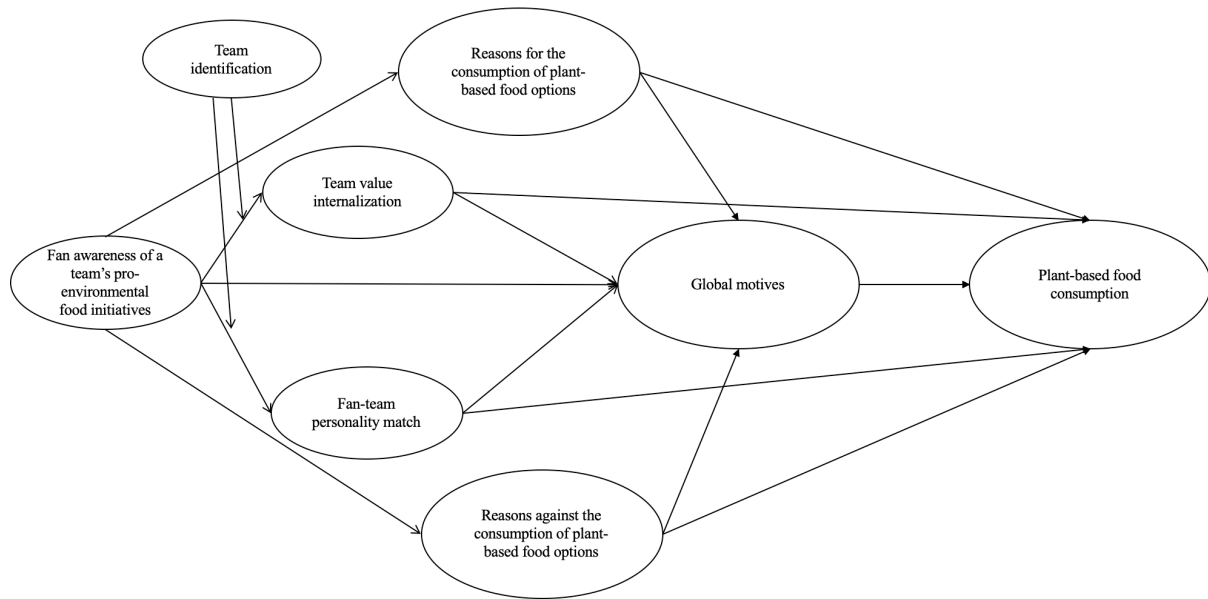
can encourage stakeholders to adopt plant-based food behaviors and to better understand their decision-making processes. Applying, combining, and extending theoretical perspectives and constructs by adding possible mediators and moderators will advance the understanding of the effects of various mechanisms on stakeholders’ plant-based food behaviors (Abrahamse, 2020). Figure 1 gives an overview of the applied theoretical perspectives and the investigated constructs of this dissertation.



Note. Own illustration; pictured based on the applied theoretical approaches and constructs of this dissertation.

Figure 1. Overview of the applied theoretical perspectives and constructs.

The first construct of awareness and promotion can be linked to the Awareness-to-Action Continuum. Constructs of organizational values are linked to all three theoretical perspectives applied. The constructs of reasons and global motives are based on the theoretical perspectives of Behavioral Reasoning Theory and the Awareness-to-Action Continuum, while all three applied perspectives help to better understand and explain sustainable behavioral choices, and in this case, plant-based diet consumption by individuals (see Chapter 3.1-3.3 for a detailed explanation of the theoretical approaches). Figure 2 shows how the theoretical constructs are associated.



Note. Own illustration; pictured based on the associations under investigation.

Figure 2. *Overview of the theoretical constructs and how they are related.*

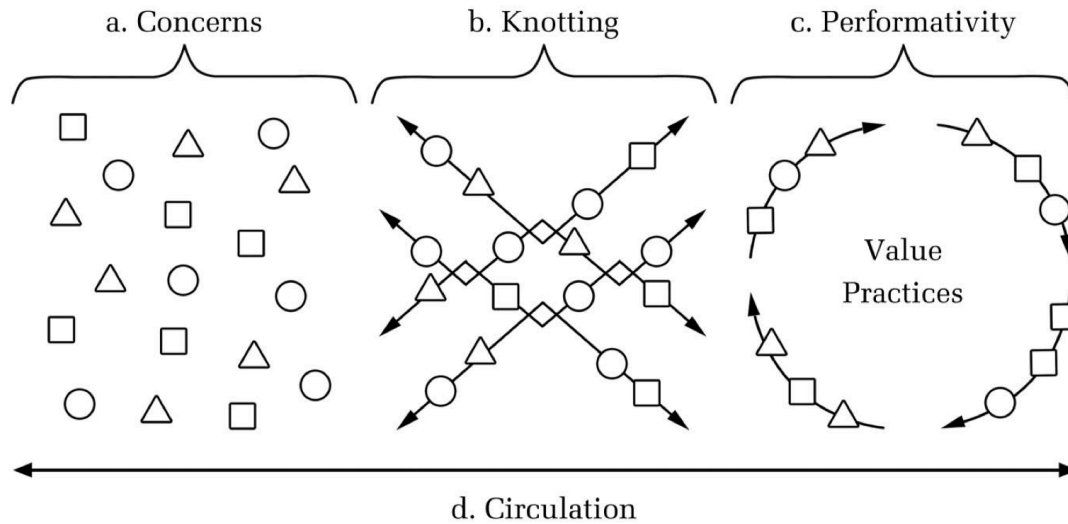
In the following, the three main theoretical perspectives used in this dissertation will be outlined.

3.1 Values Work Process Framework to Assess Organizational Implementations and their Downstream Relations on Consumers

Every organization has a specific set of organizational values, which are coupled with the organizational culture (Agle & Caldwell, 1999). Organizational values were found to be linked to and influence the performance of organizations (Agle & Caldwell, 1999; Kerwin et al., 2014b) and to represent organizational objectives (Rokeach, 1979). Values and ethics were also found to reflect what is essential for an organization when implementing sustainability activities and strategies (Galpin et al., 2015; George et al., 2019). To add, organizational values can be used to market organizational activities to stakeholders and create benefits for organizations (Chang, 2011; Han et al., 2019). It was further detected that if organizational values align with stakeholder values (Kristof-Brown et al., 2005), this can increase the relationship between both parties and inspire stakeholders to adapt their practices. Thus, values

can be seen as an important tool to outline what an organization stands for and to strengthen the relationship between stakeholders and organizations (Moorman & Day, 2016).

Gehman et al. (2013) outline four dimensions of how values practices work, giving a deeper understanding of the influence of values on organizational processes and procedures. The framework gives insights into what effects these values work processes can have, allowing to understand how organizational values pass on through an organization and to stakeholders over time. Values practices can be seen as organizational norms and activities that give an understanding of what behaviors are acceptable in organizations (e.g., which are considered correct or incorrect) and are further linked to the culture of organizations. Values work pictures how values practices come into life and are executed and what effects these values practices have on the organization and stakeholders. Values work is an ongoing process within organizations and could contradict given organizational practices and may reconfigure itself if new concerns within organizations emerge (Gehman et al., 2013). Figure 3 shows the theoretical model of values work. In the first step, local concerns of stakeholders must be gathered and dealt with. Second, these stakeholder concerns are knotted together into action networks to be addressed simultaneously and comprehensively. Third, value practices are performed in a continuous process and contribute to achieving a certain way of how to behave within organizations by intervening and helping to achieve new behavioral norms. Fourth, a value discourse and circulation among stakeholders and organizational parts is reached, helping to justify performed actions. By going through these steps, the theory helps to investigate how organizational values are built up and spread through an organization and to stakeholders (Gehman et al., 2013).



Note. Adopted from “Values work: A process study of the emergence and performance of organizational values practices” by Gehman, J., Trevino, L. K., & Garud, R., 2013, *Academy of Management Journal*, 56, 84-112. Copyright of the Academy of Management.

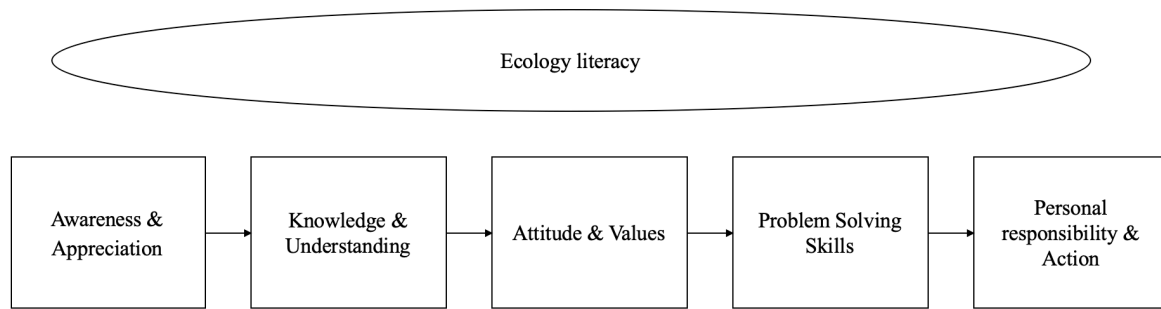
Figure 3. *Values work theoretical model.*

In the sports context, it was identified that implementing ethical-social values, managing stakeholders by values, and engaging stakeholders within the managing process can help sport organizations to increase organizational performance (Kerwin et al., 2014a, 2014b). It was further found that sport organizations can implement a holistic and authentic sustainability value system (e.g., Forest Green Rovers, Samuel et al., 2022). These findings highlight the necessity to better understand how values work processes operate within organizations and how organizations can build up a sustainable value system and spread their values to stakeholders. Lastly, a better understanding of how organizational sustainable values work toward stakeholders is important as sport organizations have to fulfill various societal and institutional expectations nowadays (Babiak & Trendafilova, 2011; Trendafilova et al., 2013). Therefore, the theoretical framework of values work allows to explore how sustainability-directed organizational values evolve and are marketed to stakeholders, influencing their plant-based diet consumption behaviors.

3.2 Awareness-to-Action Continuum to Assess Consumer Responses

Awareness refers to the perception of stakeholders about realized organizational activities in a specific context. Promoting and increasing awareness about ecological behaviors and sustainable initiatives is an important predictor of and starting point to influence stakeholders' sustainable behaviors and to develop organizational beliefs. Increasing awareness lowers the requisite efforts to inform people about activities, allows more precise communication, and can impact decision-making processes (Brown & Dacin, 1997; Gallego et al., 2011; Walker & Kent, 2013). In that sense, Kaiser and Fuhrer (2003) further outlined that environmental knowledge is an important predictor of ecological behaviors. Increasing awareness and knowledge of sustainable organizational activities can therefore be considered a tool to influence individuals' sustainable actions.

The Awareness-to-Action Continuum outlines how an individual can become ecologically educated over time by going through different phases of learning. Guiding individuals toward pro-environmental behaviors is important in regard to getting environmental educated and achieving norms for pro-environmental behaviors in society (Barnes, 2013). In the first phase, awareness and appreciation of natural systems are built, which are a precondition for the other phases. In the second phase, knowledge and understanding about natural systems and their connection to human systems is gained. In the third phase, attitudes and values change toward pro-environmental behaviors. A respectful interaction with the earth and natural systems, as well as a motivation to act more sustainably, is established. In the fourth phase, problem-solving skills to understand and tackle environmental issues are developed. In the fifth phase, personal responsibility and action take place by taking over pro-environmental behaviors and anchoring pro-environmental values in one's own moral compass (Barnes, 2013). Figure 4 gives an overview of the Awareness-to-Action Continuum framework in environmental education.



Note. Own illustration; Based on “Awareness to Action: the journey toward a deeper ecological literacy” by J. C. Barnes (2013), *Journal of Sustainability Education*, 5, pp. 1-5.

Figure 4. *Awareness to Action Continuum in Environmental Education.*

In a sport context, the shown relation in Figure 4 has not been explored by now. However, previous research focused on specific constructs depicted in the Awareness-to-Action Continuum. For example, sport organizations can create awareness through sustainable initiatives with educational, informative, and fan involvement elements (Casper et al., 2017; Irwin et al., 2010; McCullough & Kellison, 2016). Increasing awareness about activities can be essential to engaging people in pro-environmental initiatives and behaviors (Casper et al., 2014; Cayolla et al., 2022; Irwin et al., 2010), while a lack of awareness and information can reduce fan involvement in environmental initiatives and behaviors (McCullough, 2013; Trail & McCullough, 2021). Regarding plant-based food consumption in the sport spectator context, increasing awareness about and promoting plant-based options is especially important as fans often can only choose between food options provided at sport venues (e.g., stadium, Koenigstorfer, 2018) and are not allowed to bring their own food.

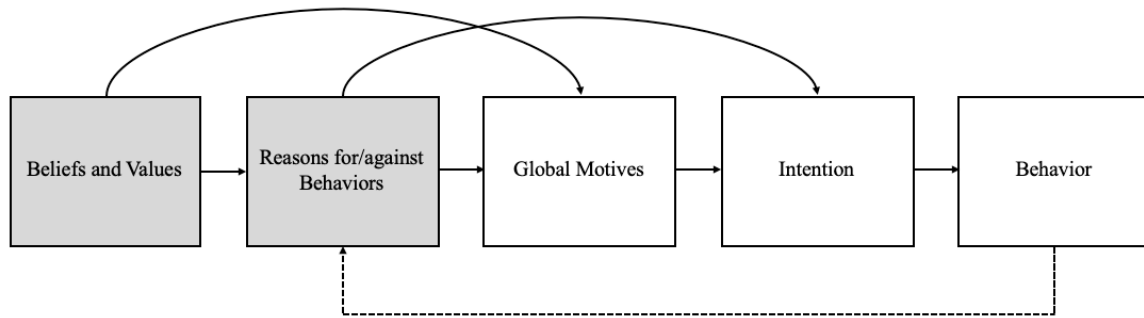
With regard to the research questions and goals of this dissertation, the relation between awareness and plant-based diet behaviors may be explained by fans' adoption of sustainable team values (Inoue & Kent, 2012a). If people perceive that an organization builds up sustainable values that fit their own values, they may accept these new values and internalize them in their value system, change their attitude toward a certain behavior, and act differently (here: consume plant-based diets) (Ashforth & Mael, 1989; Kelman, 1958, 1961, 2006). On the

other hand, fans may evaluate a sport organization based on its personality traits (Stadler Blank et al., 2018), and, if a match is given, allow the organization to become part of their identity (Derbaix & Decrop, 2011; Wann & Branscombe, 1990) and start to adopt organizational behaviors. People often evaluate an organization based on its personality traits and characteristics and compare these traits and characteristics to themselves (Aaker, 1997; Kristof, 1996) as they look for congruence between themselves and favorable organizations to reduce potential dissatisfaction of a misfit (Cable & Edwards, 2004; Sirgy, 1982). Additionally, identification levels with a sport organization were found to have an influence on the willingness of different fan groups to engage in pro-environmental initiatives (Casper et al., 2017). Highly identified fans often want sport teams to focus on sporting success (End et al., 2002; Wann et al., 1996) and may be less interested in other team activities (Walker & Kent, 2009). Identification outlines in how far an individual perceives to belong to a certain group and accepts influence of this group to maintain or establish a relationship (Ashforth & Mael, 1989; Mael & Ashforth, 1992). Also, attitudes and subjective norms were found to predict sustainable behaviors in a sport context (McCullough & Cunningham, 2011; Trail & McCullough, 2021). Attitudes describe a personal evaluation of behavior as favorable or unfavorable, while subjective norms describe people's perception that they have to behave in certain ways based on the opinions of important others (Ajzen & Fishbein, 1980). The Awareness-to-Action Continuum allows to investigate the named constructs and helps to understand how sport organizations promoting pro-environmental behaviors can become key players in educating fans toward acting more sustainably by increasing awareness, changing attitudes and values, and calling for personal action.

3.3 Behavioral Reasoning Theory to Capture Concession Stand Managers' Barriers and Facilitators

Reasons play a crucial role in the decision-making process of individuals. They can be categorized into motivators for and against adopting specific behaviors, thus emerging as either obstacles or catalysts for behaviors (Westaby, 2005). A reason for or against an action can give people a strong impulse to behave in a certain way. Thereby, behaviors are often grounded on specific reasons, and people make use of reasons to explain their behavioral choices (Claudy et al., 2015; Diddi et al., 2019; Westaby, 2005; Westaby et al., 2010). Based on an individual's knowledge about and the perceived benefits or disadvantages of specific actions, reasons can serve as a rationale for the adoption or resistance of behaviors. However, as reasons are generally linked to certain behaviors and, thus, are context-specific, the availability of new information can lead to modifications of actions as another reason becomes more important (Westaby, 2005; Westaby et al., 2010).

Behavioral Reasoning Theory offers a conceptual framework to delve into context-specific motivational drivers behind an individual's actions and allows the exploration of underlying rationales for behaviors. BRT emphasizes the intricate interplay between reasons, beliefs, values, global motives, intentions, and actions. The theory posits that reasons wield a direct impact on subsequent constructs, such as global motives and behavioral intentions while being partly influenced by individuals' beliefs and values (Westaby, 2005). Reasons constitute a substantial element within Behavioral Reasoning Theory and extend existing behavioral intention models like the TRA (Ajzen & Fishbein, 1980) or TPB (Ajzen, 1991) to elucidate behavioral choices individuals make. Based on an individual's appraisal of behaviors, reasons have to be differentiated into reasons for and against the adoption of certain behaviors and can therefore be considered barriers or facilitators of behaviors (Westaby, 2005). A visual representation of the general theoretical framework can be found in Figure 5.



Note. Adapted from “Behavioral reasoning theory: Identifying new linkages underlying intentions and behavior” by J. D. Westaby (2005), *Organizational Behavior and Human Decision Processes*, 98(2), pp. 97–120. Copyright 2023 Elsevier. Shaded boxes denote context-specific cognitions used to form and sustain global motives, intentions, and behavior.

Figure 5. Behavioral reasoning framework.

The investigation of reasons for and against the promotion of plant-based diets can be considered important to explain the mainly unhealthy and meat-based consumption patterns that are present at sport venues (Ireland & Watkins, 2010; Koenigstorfer, 2018; Parry et al., 2017; Parry & Richards, 2022) while there is a possibility for sport venues to serve as a place providing healthy and sustainable food options to fans (Parry et al., 2019). For example, in their daily life, fans may mainly eat plant-based diets and rarely meat due to health benefits or for animal welfare. However, they may have certain reasons not to consume plant-based diets at sport venues (e.g., there may be trust issues toward the caterer; or they face difficulties in accessing plant-based options as such options are not provided at every concession stand or area at sport venues). Therefore, fans make use of specific reasons to defend their actions of eating unsustainable and meat-based food options. Managers who are responsible for catering at sport venues may also have specific reasons that prevent them from providing more plant-based diet options at sport venues. For example, they may see several benefits of plant-based diets (e.g., lower environmental impact; part of the sustainability strategy of sport organizations), but due to a lack of demand for plant-based diets or the current infrastructure of the sport venue which does not allow them to provide more plant-based food options, context-specific factors serve as a rationale to not provide more plant-based diets. Therefore, BRT

provides a meaningful framework to examine reasons for and against providing plant-based diets at sport venues and gives an opportunity to better understand managers' decision-making processes regarding plant-based diet promotion.

4 Methodology

The studies presented in this dissertation are all of empirical nature but differ in their methodological approaches. Study 1 (document analysis) and Study 5 (expert interviews) use qualitative approaches, while Study 2 (correlational survey-based research design), Study 3 (correlational survey-based research design) and Study 4 (experimental survey-based research design) use quantitative approaches. In this chapter, the applied study designs, samples, measures, and statistical methods will be outlined. Table 1 (Chapter 1.2) provides an overview of the study characteristics.

4.1 Essay 1

Study 1 and Study 2 are part of Essay 1. Study 1 is based on qualitative data collected through a document analysis. The purpose of the study was to explore how Forest Green Rovers was able to develop sustainable organizational values and implement a holistic sustainable value system, as well as how they market their sustainable values toward fans.

In the first step, a variety of documents (e.g., reports, videos, audio files) were collected based on relevance. Only documents with a focus on sustainability and sustainability activities that stimulate or implement change toward plant-based food offerings were selected. All documents were scanned and appraised (Bowen, 2009), and duplicates were eliminated. Audio files and videos were transcribed in text format, and all authors read and familiarized themselves with the documents. In total, 44 documents with 56,057 words were analyzed. The documents provided a profound overview of sustainability activities at the club.

Documents were analyzed using MAXQDA2022. A deductive-inductive approach was applied to explore how Forest Green Rovers was able to involve fans in their sustainability activities and induce their values toward fans. Gehman et al.'s (2013) values work framework was used to deductively derive themes, which served as the central concepts for the analysis

(Azungah, 2018). All sentences and paragraphs in the documents were inductively coded, categorized, and assigned to the respective themes (Bowen, 2009).

In the open coding procedure, 22 categories were identified. By going through an iterative process and rereading all documents, codes were generated based on the relevance of the research question. All codes were compared, discussed, and refined till no new codes emerged. Codes that belonged together were grouped into categories. Categories were refined, and 17 categories resulted from the final exercise. All categories were named, defined, and aligned to the respective, deductively derived themes.

In Study 2, a cross-sectional online survey was conducted with fans of Forest Green Rovers. A sample size of a minimum of 78 fans was aimed to meet sample-size requirements for detecting mediation effects (percentile bootstrapping, medium effect size, Fritz & MacKinnon, 2007).

Fans were contacted online in various ways. A link to the questionnaire was posted in the online fan forum of the club as well as in Forest Green Rovers fan groups on Facebook. Further, the survey was distributed in an email newsletter of Forest Green Rovers Supporters Club. In total, 111 fans completed the questionnaire. Four participants were excluded due to missing information, resulting in a final sample of 107 participants. The sample size had a projected power of .82 which met the recommended level of .80 for mediation models (based on a Monte Carlo power analysis, Schoemann et al., 2017).

Participants were asked about their current diet behavior and about their diet behavior before becoming a fan of Forest Green Rovers ([mostly] vegan/vegetarian or omnivore). Team value internalization was assessed with an established four-item scale of Inoue and Kent (2012a). Environmental personal norms were measured with a five-item scale taken by Scherbaum et al. (2008). The four items for participant's intention to eat a plant-based diet in the future were taken from Povey et al. (2001). Moreover, participants were asked socio-demographic and team-related questions. Original scales were used for all questions and

constructs. Except for the personal environmental norms items (four-point rating scale, ranging from 1 [lowest rating] to 7 [highest rating]), all items were measured on a seven-point scale, ranging from 1 (lowest rating) to 7 (highest rating).

For the analysis, SPSS 29.0 was used. In the first step, means, standard deviations, bivariate correlations, and associations between variables were calculated. To assess the measurement model and evaluate validity and reliability, a confirmatory factor analysis with various model fit indices was performed (Hoe, 2008) using Mplus 7.31. To assess the hypothesized paths and associations between constructs, Hayes' (2018) PROCESS model 4 with 5,000 bootstrap samples was applied. Change toward a plant-based diet served as the independent variable, team value internalization as a mediator, intentions to eat a plant-based diet as the outcome variable, and environmental personal norms served as a control variable.

4.2 Essay 2

Study 3 and Study 4 are part of Essay 2. In Study 3, an online cross-sectional survey was distributed to fans of 12 different sport teams that implemented plant-based diet activities. Team selection was based on two procedures. First, an extensive online search was conducted, including a website search of sport teams and looking for sustainability awards. Second, 12 experts from five different countries were asked if they knew about sport teams that implemented sustainable food activities and inform fans about their activities.

Fans were contacted via social media groups and fan forums. In total, 799 completed questionnaires were used for further analysis. For each team, at least 50 fans per team participated. As an incentive, three small prizes (€30) were raffled among the participants. The sample size ensured that mediation effects for small-to-medium effect size for the path from the predictor variable to the mediators as well as from the mediators to the outcome variables can be detected (recommended size of 162 participants to detect mediation effects, Fritz & MacKinnon, 2007).

Items and construct were adopted from previous research. The fan awareness scale consisted of three items and was adopted from Walker and Kent (2013). The team value internalization scale consisted of four items and was measured with an established scale of Inoue and Kent (2012a). For the fan-team personality match scale, participants had to rate their own personality and team personalities separately (Kristof, 1996). Afterward, difference scores were calculated between the personality ratings. The item characteristics were the following: successful, determined, role model, caring for the environment, and health-promoting (in reference to Stadler Blank et al., 2018). Attitudes toward pro-environmental diets (four semantic differentials) and subjective norms (four items) were adopted from Ajzen and Fishbein (1980). The six items for team identification were taken from Inoue and Kent (2012a). Finally, the three items for plant-based diet consumption (eating vegetables, eating vegan foods, and avoiding meat) were adopted from Povey et al. (2001). All items assessed in the survey were measured on a seven-point scale, ranging from 1 [lowest rating] to 7 [highest rating].

In a first step, means, standard deviations and correlations were calculated with SPSS 29.0. A confirmatory factor analysis was applied, using Mplus 7.31, to assess the validity and reliability of latent variables. Mplus 7.31 was further used to analyze the hypothesized relations and the regression-based moderated mediation model (Muthén et al., 2017). Fan awareness of pro-environmental food initiatives served as the independent variable, team value internalization and fan-team personality match as parallel mediators, team identification as a moderator, plant-based food consumption as the dependent variable, and attitude and subjective norms were applied as predictors of the dependent variable.

Study 4 employed an experimental online survey design. Amazon MTurk was used for data collection, which is considered to give high-quality data (Buhrmester et al., 2011). The survey was distributed to fans of the Boston Red Sox. Team selection was based on the team's plant-based food initiatives, which are part of their ongoing pro-environmental activities, and the inclusion criteria were that participants are fans of Boston Red Sox and above 18 years old.

In total, 356 participants were used for further analysis. Participants got a small compensation (US-\$1.75).

A 2 (team identification: low vs. high) x 2 (mission statement: core = sustainable development vs. core = sport participation) survey-experimental design was applied whereby participants were randomly assigned to one of the four conditions. First, participants had to read about the team's mission (sustainable development or sport participation). In the next step, they had to name events that made them feel very close or far away from the team and indicate their identification with the team (very close = high team identification; far away = low team identification). These open-ended responses were coded, and the number of high- minus low-identification codes was used to evaluate if the manipulation worked. All other items and constructs measured, as well as the analysis of the data, were similar to Study 3.

4.3 Essay 3

In Study 5, qualitative expert interviews with managers responsible for catering at German Bundesliga teams were conducted. The study's goal was to explore the underlying reasons for and against the promotion and provision of plant-based diets at sport venues. Expert interviews are a useful tool to gain insights in specific contexts as experts have experiences, responsibilities, and distinct knowledge of processes and decisions that are explicitly available to them (Bogner & Menz, 2009; Doeringer, 2021; Meuser & Nagel, 2009).

All 18 German Bundesliga (soccer) teams, as well as the respective catering companies of the teams, were contacted. Where information was available, managers responsible for public catering at the sport venue were contacted directly. Otherwise, the hospitality and the sustainability departments of the respective teams were contacted. In total, 13 interviews were conducted via telephone and Microsoft Teams. All interview partners contacted can be considered experts in their field as they are responsible for public catering at their sport venue, are involved in decision-making processes for public catering, and most interview partners have

a long experience in the field. To add, all experts had a close relationship with the team, actively participated in catering processes at game days, and built up stakeholder knowledge over time.

Interview questions were based on previous research investigating facilitators and barriers of plant-based diet consumption on an individual level (for example, see Lea et al., 2006; Pohjolainen et al., 2015). Questions were formulated openly to give experts the possibility to explain their answers (Bogner & Menz, 2009; Meuser & Nagel, 2009). Moreover, a comprehensive search of plant-based diet activities of the respective teams was completed to come up with focused follow-up questions. The open, semi-structured interview guideline started with an introduction to the topic and outlined the goal of the study. Further, the World Health Organization (2021) definition of plant-based food was outlined so that all managers had the same understanding. Afterwards, the open interview questions and the more team-specific questions were asked.

All interviews were recorded, transcribed and translated into English. MAXQDA2022 was used for analysis. An inductive thematic analysis approach was applied to extract reasons for and against the provision of plant-based diets at sport venues (Braun & Clarke, 2006). In the first step, all sentences and paragraphs were coded to organize the information given by the interviewees and develop a first framework. Then, themes were worked out, and codes were linked to the fitting themes to be able to interpret the data. The goal was to identify reasons for and against providing plant-based diets at sport venues.

5 Essays

5.1 Essay 1 – The Role of Organizational Values for Sustainable Development: The Case of Forest Green Rovers and the Promotion of Plant-based Diets

Publication (peer reviewed): **Pape, L.**, Höhn, I., Bunds, K., Koenigstorfer, J. (2023). The role of organizational values for sustainable development: The case of Forest Green Rovers and the promotion of plant-based diets. *Marketing ZFP - Journal of Research and Management*, 45(2), 49-71. DOI: 10.15358/0344-1369-2023-2-49

Main Author: Lennart Pape

Author contributions: L.P. contributed to the study design, data collection, processing, and analysis and wrote the first draft. J.K. contributed to the study design, data analysis, and edited drafts and served as principal investigator of this study. I.H. contributed to the data collection. K.B. reviewed and edited drafts.

Abstract

The study aims to explore the role of a professional sport team's organizational values to promote the consumption of plant-based diets among fans. The case study focuses on Forest Green Rovers, a football club with a strong mission to sustainable development. First, a document analysis (44 documents, 56,057 words in total) was conducted to explore the development of sustainable organizational values and how the sport organization markets their values towards fans. The findings reveal that Forest Green Rovers were able to overcome concerns regarding their sustainability approach and were successful in implementing sustainability in the value system of both the organization and the stakeholders, thereby stimulating behavioural change. Second, a survey of Forest Green Rovers fans ($n = 107$) reveals

that the adoption of a plant-based diet by fans is positively associated with team value internalization, which relates positively with fans' intention to eat plant-based foods in the future. Thus, internalization of organizational values may play a crucial role for promoting sustainable actions among individual customers.

5.2 Essay 2 – Sport Teams' Promotion of Plant-Based Food Consumption among Fans

Publication (peer reviewed): Manuscript accepted as **Pape, L.**, Casper, J., Koenigstorfer, J. (2023). Sport Teams' Promotion of Plant-Based Food Consumption among Fans. *Sport Management Review*. Advanced online publication. DOI: 10.1080/14413523.2023.2259146

Main Author: Lennart Pape

Author contributions: L.P. contributed to the study design, data collection, processing, and analysis and wrote the first draft. J.K. contributed to the study design, data analysis, and edited drafts and served as principal investigators of this study. J.C. reviewed and edited drafts.

Abstract

The study's goal is to examine the downstream relations of fan awareness of a favorite sport team's pro-environmental food initiatives, considering fans with different degrees of team identification. Building upon the Awareness-to-Action Continuum, the authors propose two pathways that may help explain reported plant-based food consumption among fans (i.e., eating vegetables, eating vegan food, and avoiding meat), particularly at high (vs. low) degrees of team identification: team value internalization and fan-team personality match. The first study surveyed 799 fans of 12 different sport teams from various countries, which had implemented pro-environmental food initiatives in the past. The second study used a survey-experimental design to manipulate identification with one selected team from the U.S. (n = 356 fans) and

assessed the downstream relations of fan awareness of the team's pro-environmental food initiatives. The authors control for attitude and subjective norm in their analyses and show that the levels of team identification associate with the relation between fan awareness and reported consumption of plant-based foods via fan-team personality match but not via value internalization. Ironically, the perception of the team's personality as superior to their own personality among low-identification fans is negatively related to the adoption of a plant-based diet despite high awareness levels.

5.3 Essay 3 – Reasons for and against the Provision of Plant-Based Diets at Sport

Venues: The Perspective of Catering Managers of German Bundesliga Teams

Current status: Manuscript under review as Pape, L., Koenigstorfer, J. (2023). Reasons for and against the Provision of Plant-Based Diets at Sport Venues: The Perspective of Catering Managers of German Bundesliga Teams. *European Sport Management Quarterly*. Submitted on August 28, 2023.

Main Author: Lennart Pape

Author contributions: L.P. contributed to the study design, data collection, processing, and analysis and wrote the first draft. J.K. contributed to the study design, data analysis, and edited drafts and served as principal investigator of this study.

Abstract

Based on the tenets of Behavioral Reasoning Theory, the study aims to explore reasons for and against the provision of plant-based diets at sport venues by investigating managers' perspectives. Expert interviews with 13 managers of German Bundesliga teams and catering companies were conducted. An inductive thematic analysis was applied to extract reasons for

and against providing plant-based diets. The findings reveal the following reasons for providing plant-based diets: increasing demand; pursuing an authentic sustainability mission; attracting and collaborating with new partners; incentivizing food trials; as well as reducing environmental impact and promoting health. Reasons against were the following: overall low demand for plant-based diets; focus on sporting success; high efforts to provide plant-based diets; inappropriate infrastructure to offer plant-based diets on a broader scale; and the lack of an appropriate supply chain for providing plant-based diets. Future studies can build upon these findings to showcase how facilitators (here: reasons for) can be implemented within strategic and operational management actions. Future studies can also be designed to identify how barriers (here: reasons against) can be reduced to promote sustainable food consumption among fans.

6 General Conclusion

The purpose of this thesis was to investigate how sport organizations can promote plant-based diets among their fans. By exploring the factors important to the association between fan awareness of the promotion of plant-based diets by sport organizations and fans' adoption of plant-based diets as well as by investigating underlying reasons for and against providing plant-based diets at sport venues from the managerial perspective, this thesis has several theoretical and practical implications. This chapter reflects on the main findings and draws on theoretical and practical implications, key limitations of the studies, and future research directions. Table 2 gives an overview of the main findings and implications of the study.

Table 2. *Summary of the main findings of the conducted studies.*

	Essay 5.1		Essay 5.2		Essay 5.3
	Study 1	Study 2	Study 3	Study 4	Study 5
Objectives	Investigate how FGR where able to incorporate a holistic sustainable value system as well as how and why fans adopt these sustainable values in their value system	Test the proposed mediation model: diet change (predictor), internalization of team values (mediator), plant-based diet intention (outcome), environmental personal norms (control)	Test the proposed moderated mediation model: fan awareness (predictor), internalization of team values (mediator), fan-team personality match (mediator), team identification (moderator), consumption of plant-based diets (outcome), attitudes (control), subjective norms (control)	Replicate the results of Study 5, using a team identification (low vs. high) and mission statement (sport vs. sustainability) manipulation	Explore catering managers' specific reasons for and against providing and promoting plant-based diets at sport venues
Method	Deductive-inductive approach for analyzing case studies (44 documents, 56,057 words)	Regression-based mediation analysis (N=107)	Regression-based moderated mediation analysis (N=799)	Regression-based moderated mediation analysis (N=356)	Thematic analysis (N=13)

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	Essay 5.1		Essay 5.2		Essay 5.3
	Study 1	Study 2	Study 3	Study 4	Study 5
Main findings	<ul style="list-style-type: none">– Find out how FGR were able to implement sustainable organizational values and market their values to fans– Extend Gehman et al.'s (2013) list of processes how values work by one domain: Overcoming value constraints to build a holistic value system	<ul style="list-style-type: none">– Change toward a plant-based diet and environmental personal norms significantly relate to team value internalization– No significant association between change toward plant-based diet and intentions to eat plant-based diets– Team value internalization significantly relates to intention to eat plant-based diets	<ul style="list-style-type: none">– Fan awareness and team value internalization significantly correlate– Fan awareness and fan-team personality match significantly correlate– Fan-team personality match but not internalization relates positively with plant-based diet consumption– Fan-team personality match but not internalization mediates the relation between awareness and plant-based diet consumption	<ul style="list-style-type: none">– The proposed model is supported by the data– Successful manipulation of team identification (low vs. high) and mission statement (sport vs. sustainability)– The relation between awareness and plant-based diet consumption is only mediated by fan-team personality match at a low level of team identification	<ul style="list-style-type: none">– Reasons for: Increasing demand; pursuing an authentic sustainability mission; attracting and collaborating with new partners; incentivizing food trials; and reducing environmental impact and promoting health– Reasons against: Overall low demand for plant-based diets; focus on sporting success; high efforts to provide plant-based diets; inappropriate infrastructure to offer plant-based diets on a broader scale;

(Continued).

(Continued).

	Essay 5.1		Essay 5.2		Essay 5.3
	Study 1	Study 2	Study 3	Study 4	Study 5
Main findings		– Full mediation of the association between change toward plant-based diet and intention to eat plant-based diets via team value internalization	– The before mentioned relation is weaker at high vs. low levels of team identification for fan-team personality match – Attitudes and subjective norms positively relate to plant-based diet consumption		and the lack of an appropriate supply chain for providing plant-based diets
Implications	FGR can be seen as a role-model organization of how to apply values work processes to become a sustainable organization. Sustainable organizational values can inspire intention to consume plant-based diets in the future. Other organizations may follow FGR’s approach to successfully market their sustainable values to stakeholders.		A positive relation between pro-environmental team initiatives and fans’ sustainable behavioral intentions was found. However, fan awareness alone did not positively correlate with the adoption of plant-based diets. Factors in between this association were found to play an important role for fans to adopt plant-based diet behaviors (fan-team personality match). Lowly identified fans perceived a mismatch between the team and themselves, highlighting the role team identification may play regarding the promotion of plant-based diets.		Findings highlight how facilitators (reasons for) can be implemented within strategic and operational management actions and how barriers (reasons against) can be reduced to promote sustainable food consumption at sport venues.

Note. FGR = Forest Green Rovers.

6.1 Theoretical Implications

From a theoretical standpoint, this dissertation supports recent research streams on sport ecology (McCullough et al., 2020) that investigated different determinants of how sport organizations can influence stakeholders' behaviors toward acting more sustainable (for example, Value-Belief-Norm Theory, Casper et al., 2014; Social Influence Theory, Inoue & Kent, 2012a; TPB, McCullough & Cunningham, 2011; internal and external constraints, Trail & McCullough, 2018; sport sustainability campaign evaluation model, Trail & McCullough, 2020; Trail & McCullough, 2021). More specifically, the thesis provides novel insights into the sport-spectator food domain and the topic of plant-based diet promotion by sport organizations. By applying and extending existing conceptual frameworks (for example, Barnes, 2013; Gehman et al., 2013; Inoue & Kent, 2012a; Westaby, 2005), investigating further determinants and mechanisms that are associated with environmental behaviors (here: self-reported plant-based diet consumption), helping explain the association between fan awareness of the promotion of pro-environmental diets by sport organizations and fans' dietary behaviors, as well as shedding light on underlying reasons of managers for promoting and providing plant-based diets at sport venues, this dissertation adds to the research on pro-environmental behaviors in sport management in various ways.

First, organizational values were found to play a significant role in influencing fans' plant-based dietary behaviors. If sport organizations are able to highlight a fit between their sustainable activities and what they stand for, they may be in a position to increase the level of fan engagement (McCullough & Trail, 2023) and highlight their sustainable values to stakeholders which would allow fans to take over these values in their own value system (Inoue & Kent, 2012a; Kelman, 2006; Kristof-Brown et al., 2005; Pape et al., 2023). The findings of Study 2 were in line with Inoue and Kent's (2012a) results and showed that the internalization of organizational sustainable team values related positively to fans' plant-based dietary behaviors. In addition, the findings highlight potential downstream consequences of

sustainability activities if sport organizations can embed sustainable values in their value system. However, value internalization only functioned as a mediator in Study 2, but not in Study 3 and Study 4. It can be assumed that more than the mere awareness of pro-environmental food initiatives is needed for fans to internalize team values like a stronger engagement in organizational plant-based diet activities.

Second, the results of Study 1 extend Gehman et al.'s (2013) conceptualization of values work by an additional context-specific domain. While the framework provided a possibility to showcase how Forest Green Rovers were able to highlight their organizational values to stakeholders and how values operate through the organization in all four domains, it was found that it is further important to overcome value constraints when an organization wants to build up a holistic value system in the context of sustainable food provision and consumption. By taking a holistic and systematic approach, the internalization of organizational values by stakeholders in their own value system can take place (Kelman, 2006), which can influence behavioral decisions of fans as found in Study 2. Study 1 further highlighted that it is important for sport organizations to actively market and communicate their sustainable activities and the benefits of their actions to increase support for change, create a common understanding among stakeholders, and enhance organizational performance (Han et al., 2019; Papadas et al., 2017; Parry et al., 2019). Thereby, sport organizations can create a social tipping point for fans to change diet patterns (Aschemann-Witzel & Schulze, 2023).

Third, the findings of Study 3 and Study 4 further provide evidence for whether, when, and how fan awareness of pro-environmental diet activities of sport organizations relate to plant-based dietary behaviors of fans. By examining the role of fan-team personality match in the relation between awareness about pro-environmental food initiatives and plant-based diet consumption, novel insights were gained. In comparison to the findings of Casper et al. (2017), who found that lowly-identified fans were more open toward pro-environmental activities, the results of Study 3 and Study 4 explored that lowly-identified fans perceive sport organization's

personality as superior compared to their own personality with increasing awareness levels, with negative downstream effects on plant-based diet consumption. Therefore, the trickle-down effect on fans' pro-environmental practices, which was found in previous studies (Casper et al., 2014; Inoue & Kent, 2012a; Trail & McCullough, 2021), may not exist in the context of plant-based diet promotion toward lowly identified fans. Compared to lowly identified fans, highly identified fans perceived smaller differences between the team and themselves, with positive downstream consequences for the promotion of pro-environmental food initiatives. The manipulation of the mission statement in Study 4 did not eliminate the effect, highlighting that a deeper engagement of fans in sustainable activities rather than only communicating or informing about such activities is necessary. Thus, by applying the Awareness-to-Action Continuum (Barnes, 2013), new insights into the association between the promotion of plant-based food initiatives and plant-based diet consumption and factors that may influence this association were generated.

Fourth, Study 5 investigated managers' perspectives on facilitators and barriers of plant-based diet promotion and gives insights into why sport organizations do provide or do not provide plant-based food options at their venues. By applying a BRT perspective, various facilitators and barriers regarding promoting plant-based diets were explored from an organizational perspective. Previous research on plant-based diet, sustainable, or organic food consumption mainly focused on facilitators and barriers on the individual level (Lea et al., 2006; Meyer & Reguant-Closa, 2017; Pohjolainen et al., 2015; Tandon et al., 2020). However, organizational factors may play a crucial role in what food choices are provided and thereby influence a manager's decision-making process and help overcome barriers people may face (Ram & Sheth, 1989). While sport venues can be perceived as a place to promote healthy and sustainable food behaviors (Parry et al., 2019), there are currently various reasons on both the individual and the organizational level that argue against an extensive promotion of plant-based diets (for example, unhealthy food consumption routines, which can be linked to mainly

unhealthy and unsustainable food and beverage offerings, Cornwell & Koenigstorfer, 2017; Ireland & Watkins, 2010; Koenigstorfer, 2018; Parry & Richards, 2022). By investigating facilitators and barriers for promoting plant-based diets on the organizational level, a better understanding of how to manage changes toward the provision of plant-based diets from a different perspective—managers' point of view—is given. Additionally, insights into the decision-making processes of managers were gained (Rousseau, 2006; Westaby et al., 2010) as various reasons for and against plant-based food offerings enter the decision-making process. Basing decisions on evidence (for example, price or demand of products) while being aware of non-quantifiable factors (for example, stakeholder expectation or the role of the organization in society) makes decision-making processes more complex for responsible managers in specific contexts like the sport spectator food sector.

6.2 Practical Implications

This thesis has several practical implications. First, various determinants were outlined on how sport organizations may influence fans' food behaviors. Organizational values were found to positively relate to plant-based diet behaviors, showcasing that plant-based diet initiatives of sport organizations can influence dietary behaviors of fans if they are planned and marketed strategically. Moreover, Lea et al. (2006) found that a lack of information about plant-based diets is a main barrier to plant-based diet consumption. Sport organizations' sustainable plant-based diet initiatives can help to overcome barriers by informing fans about benefits, engaging them in plant-based diet initiatives, and allowing them to taste and try out plant-based food options at sport venues. However, mere communication about sustainable and plant-based diet activities seems to not be enough to influence fans. Sport organizations should strategically plan and market sustainable and plant-based food activities with engagement and educational elements to achieve behavioral change and avoid a negative backlash.

Second, different customer segments should be considered by sport teams when promoting plant-based diets. In line with previous research, which found differences between consumer segments and their willingness to consume meat alternatives (Goetze & Brunner, 2021; Knaapila et al., 2022), sport organizations may focus on different areas at sport venues (e.g., family areas) to market and promote plant-based diets. While no fan group should be neglected, some fan groups are more open toward plant-based food options. Although the findings of Study 3 and Study 4 differ compared to Casper et al.'s (2017) findings that lowly-identified fans are more open toward sustainable activities, managers of sport teams can start to interact with different fan groups, try out varied sustainable activities based on target groups and evaluate the success of these activities. This means that sport organizations should not only focus on one specific fan group when promoting plant-based diets but apply different marketing techniques based on target groups (e.g., lowly and highly identified fans) when communicating sustainable plant-based activities. Increasing fan attitudes toward plant-based diets, allowing them to internalize sustainable organizational values, and achieving a better personality match between sport organizations and fans can help to overcome plant-based diet consumption barriers.

Third, focusing on pro-environmental activities and promoting sustainable values may also help sport organizations differentiate themselves from other organizations and become more interesting for specific fan groups and sponsors. Such an approach can help position a sport organization in a highly competitive market and make use of distinct marketing activities (Cornwell & Koenigstorfer, 2017; Stadler Blank et al., 2018). However, it is important to communicate frequently if sport organizations want consumers to become aware of their approach (Walker & Kent, 2009). Study 5 showed that managers see the necessity to precisely and extensively communicate their plant-based food activities to increase awareness levels of fans.

Fourth, Study 1 highlighted that it is important for sport organizations to create a holistic value system if they want to influence fans' eating behaviors. If sport organizations are perceived to stand up for sustainable values, fans may start to internalize these values in their own value system (Kelman, 2006). As the implementation of sustainable values is a long-term process, organizations can apply the values work framework (Gehman et al., 2013) to better understand how to proceed and how to change toward more environmentally friendly practices.

Fifth, various reasons for and against promoting plant-based diets from a sport team catering manager perspective were outlined in Study 5. As the topic of sustainability in sport has become more relevant, different forces may drive sport organizations to act more sustainably (Trendafilova et al., 2013) and provide more plant-based diets at sport venues. New regulations by league organizers and fans must be anticipated and eventually considered as drivers that force sport organizations to change activities toward sustainability.

Lastly, managers responsible for catering at sport venues can apply specific actions to overcome the barriers explored and leverage the facilitators. Thus, they can incorporate the topic of plant-based diet provision in long-term strategies and develop fitting marketing activities for the promotion (for example, to overcome negative perception toward plant-based diets; improve infrastructure, Ireland & Watkins, 2010; Parry et al., 2017; Parry & Richards, 2022). Also, league organizers can implement more specific regulations regarding the provision of plant-based diets. For example, implementing plant-based game days or obliging sport organizations to increase their offerings can be tools to promote plant-based diets. To add, certifications may serve as a tool to highlight organization values at work that come along with such activities (Gehman et al., 2019), increase fan awareness and perception about sustainable and plant-based diet activities at sport venues, and help catering managers promote plant-based food options at sport venues.

6.3 Limitations and Future Research Directions

The studies of this thesis have several limitations which can be investigated in future research. First, all quantitative studies used self-reported measures, which are vulnerable to response and recall biases. This can lead to socially desirable answers, overestimation of personal knowledge, and biased memory of plant-based food intake (Althubaiti, 2016). Incorporating measures to evaluate actual behaviors would be beneficial, like real-life observation at sport venues. To add, the constructs of team value internalizations (Study 2, Study 3, Study 4) and fan-team personality match (Study 3, Study 4) did not capture all possible team values and characteristics. Future research may investigate team values and characteristics in more detail. Moreover, the items for plant-based diet consumption may provide a myopic view. Sustainable food consumption may not just relate to a reduction of animal products but can also include local and seasonal products. Additionally, people may perceive the provision of a plant-based diet as a threat due to eating routines. Lastly, fan awareness (Study 3, Study 4) was measured on a 1–7 scale and not as a binary variable, which did not allow to get information about specific pro-environmental food activities. Adding specific items to the used constructs to tackle these aspects might allow for initiative-specific measures and analyses.

Second, no causal-effect claims can be made. Study 2 and Study 3 used cross-sectional data, which is a key limitation. Also, Study 3 and Study 4 did not assess all the stages of the Awareness-to-Action continuum and did not establish causality of the model. Collecting longitudinal data to understand how the various determinants and mechanisms change when a sport organization starts to promote plant-based diets would be beneficial (for example, when do fans start to internalize team values). Then, downstream effects can be studied, measuring outcome variables at different time points. Additionally, the samples in all studies are not representative of the investigated sport fans or teams. To add, Study 4 used MTurk, which is seen as an instrument to collect high qualitative data (Buhrmester et al., 2011). However, MTurk workers may have given socially desirable answers, based their answers on extrinsic

motivation (including fast responses and a lack of attention), and are further not representative of the investigated sport organization. It could be that mainly fans who are more open toward pro-environmental activities participated in the studies. Future studies may use representative samples.

Fourth, the qualitative method applied in Study 5 did not allow to assess the importance of the different reasons named and focused on a league in one country. Moreover, managers may overestimate their sport organization's efforts in providing plant-based diets. A long-term mixed-method case study investigating the perspectives of catering managers and fans in different sport leagues and countries would help to find out what reasons are perceived prevalent, in how far food offerings are changing over time as well as if the investigated reasons for and against providing plant-based diets are also dominant in different leagues and countries or if cultural aspects may play a crucial role in the provision process.

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Appendix

Essay 1

Essay 2

Essay 3

Essay 1

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The Role of Organizational Values for Sustainable Development: The Case of Forest Green Rovers and the Promotion of Plant-based Diets

By Lennart Pape, Ingo Höhn, Kyle Bunds, and Joerg Koenigstorfer*

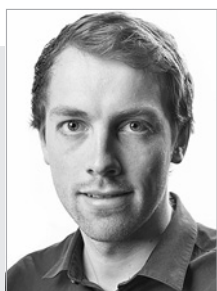
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The study aims to explore the role of a professional sport team's organizational values to promote the consumption of plant-based diets among fans. The case study focuses on Forest Green Rovers, a football club with a strong mission to sustainable development. First, a document analysis (44 documents, 56,057 words in total) was conducted to explore the development of sustainable organizational values and how the sport organization markets their values towards fans. The findings reveal that Forest Green Rovers was able to overcome concerns regarding their sustainability approach and was successful in implementing sustainability in the value system of both the organization and the stakeholders, thereby stimulating behavioural change. Second, a survey of Forest Green Rovers fans ($n = 107$) reveals that the adoption of a plant-based diet by fans is positively associated with team value internalization, which relates positively with fans' intention to eat plant-based foods in the future. Thus, internalization of organizational values may play a crucial role for promoting future sustainable actions among individual customers.

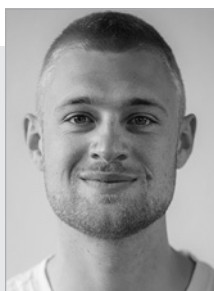
1. Introduction

Forest Green Rovers, an English football club, was the first professional sport club to receive the Vegan Trademark (The Vegan Society 2017). FIFA (2022) described Forest Green Rovers as “the world's greenest football club” and the club has received the UN Global Climate Action Award for its holistic sustainability practices. Samuel et al. (2022) note that the team's owner was successful in “introducing the novel and authentic ‘sustainability’ value system into FGR (Forest Green Rovers; *added by the authors*) and the world of professional football” (p. 576). Thus, sustainability values may play a crucial role to bring corporate missions to life.

Organizational values are defined as “socially shared cognitive representations of institutional goals and demands” (Rokeach 1979, p. 50), conceptually linked to organizational culture, and can influence organizational performance (Agle and Caldwell 1999; see Kerwin et al. 2014a, 2014b, for the sport context). Thus, organizational culture and values may help marketers to promote long-term goals of organizations, increase brand awareness, and better relationships with stakeholders (Moorman and Day 2016). The present case study aims to explore the role of Forest Green Rovers' organizational values to promote the consumption of plant-based diets



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by Rovers' fans and their intentions to become vegan. Food consumption at sport venues can be an inhibitor to promoting sustainability and climate change, because most food is meat-based and rather unsustainable (Parry et al. 2017; Williams and Williams 2013), and because fans' ecological footprint is up to eight times higher while attending a sport event compared to daily life, with a large proportion of waste as a result of food consumption (Collins and Flynn 2008). Yet, to our knowledge, there are no empirical studies related to organizational sustainability values and their relationship to promoting consumers' adoption of a plant-based diet.

We conducted an initial case study using a nested mixed-methods design (Guetterman and Fetters 2018). First, we performed a document analysis to explore Forest Green Rovers' promotion of plant-based diets and the public discourse around this. Forest Green Rovers was selected as a case due to the comprehensive implementation of sustainability initiatives since 2010 when Dale Vince became the chairman of the club and started to include the topic of sustainability at the heart of the sport organization (Forest Green Rovers 2022a). Forest Green Rovers markets its sustainability initiatives via its website and directly at game days. They built up a community program to engage adults as well as children and adolescents and, due to their comprehensive sustainability approach, attracted several sponsors, particularly since Dale Vince was appointed as UN Climate Champion (Forest Green Rovers 2022c, 2023).

Second, we surveyed Forest Green Rovers fans to assess whether they adopted a plant-based diet when they became fan of the team and whether such potential behavioural change is positively associated with team value internalization and, hence, fans' intention to maintain eating a plant-based diet in the future. The knowledge gained of whether and how an organization's sustainability values may influence the sustainable practices of sport fans advances the field of how to market sustainable food in a sports context in the following ways: (1) extending the list and description of processes of how values work towards customers' sustainable actions (extending Gehman et al. [2013] values work theory); (2) providing process evidence for the downstream relations of organizational values on dietary preferences toward plant-based foods, in particular outlining the relevance of the concept of organizational value internalization for the formation of sustainable behavioural intentions; and (3) showcasing how Forest Green Rovers was successful in applying the values work processes to become a sustainable organization, potentially helping other organizations to follow and successfully market their approach to stakeholders.

We briefly review the literature on sustainable food provision in sport venues before we consider the role of organizational values for the promotion of sustainable consumer-related actions. In the empirical part of our work, we rely on both documents and public disclosure about

Forest Green Rovers and survey data with Forest Green Rovers fans to explore how values relate to fans' own behaviours. We conclude by discussing the findings and the limitations of the present research, and by giving an outlook on future research.

2. Literature review

2.1. Sustainable food provision in sport venues

In sport venues, fans' food choices are constrained, because one can only consume what is available at licensed venue concessions. This is because, for security reasons, fans are not allowed to bring food and drinks with them (Parry and Richards 2022). The concession-stand providers typically have exclusive rights to sell specific items, which may be associated with a team or venue sponsorship (Cornwell and Koenigstorfer 2017; Merkle and Golding 2020). Many concession items are meat-based (e.g., hot dogs, burgers, and pies) (Parry et al. 2017; Williams and Williams 2013). These items are often in contrast with sustainable food choices, which include low consumption of meat (especially beef) and dairy products, high consumption of fruits, legumes, and vegetables, and reliance on locally grown products (and avoidance of transportation by air), among others (Reisch et al. 2013; Sedlacko et al. 2013). Although concession providers and food producers often have commitments to sustainability as part of their corporate mission, most offerings provided on-site are unsustainable, because meat-based options predominate (Cornwell and Koenigstorfer 2017; Ireland and Watkins 2010; Koenigstorfer 2018; Parry et al. 2017; Parry and Richards 2022). One reason for the provision of unsustainable meat-based options may be consumer preferences, which are often driven by meat enjoyment. In several cultures, coming together and having a barbecue before or during sport games became a tradition for fans (Arnold 2023). Additionally, the familiarity with meat options and the tradition of eating meat, as well as the perceived difficulty with the preparation of plant-based food options or the higher price of such options are barriers to the adoption of plant-based food (Pohjolainen et al. 2015; Reisch et al. 2013). They may also drive the provision of meat offerings at sport venues. In this direction, Vermeir and Verbeke (2006) note that actual behaviour is often different from stated preferences for environmentally sustainable foods. This might also be the case for fans who make taste-driven food decisions in sport venues.

Yet, some teams and venues are committed to providing sustainable food to fans. Henly and Krenza (2015) present cases in which sport venue managers adopted sustainable food systems, as found in menu planning (e.g., vegetarian and vegan options, local and seasonal ingredients), procurement (e.g., organic food, antibiotic-free food), preparation efficiency (e.g., reduce energy and water needs), service ware and packaging (e.g., reusable and recyclable service ware, packaging-free options),

and waste diversion (e.g., donate unsold prepared food). They consider green game-day food as food that (1) sustains healthy water systems; (2) maintains soil nutrients; (3) optimizes agricultural land use; (4) reduces greenhouse gas emissions; (5) reduces dependence on chemical inputs; (6) safeguards the welfare of food producers and workers; and (7) minimizes the transmission of diseases at farms. These characteristics are mostly in agreement with what has been described as sustainable food options above. While Henly and Krenza (2015) outline that certain meat options meet these characteristics, it was shown that non-meat and plant-based food options are considerably more sustainable (Springmann et al. 2018). In what follows, we focus on plant-based diets, which are described as diets that avoid or reduce meat (World Health Organization 2021).

2.2. Adoption of plant-based diets and team fandom

One important aspect of sustainable food consumption is the promotion of plant-based diets. The World Health Organization (2021) defines plant-based diets as diets that “constitute a diverse range of dietary patterns that emphasize foods derived from plant sources coupled with lower consumption or exclusion of animal products” (p. 1). This includes fruits, vegetables, grains, legumes, nuts, and seeds. Compared to meat-based diets, plant-based diets lower the impact on the environment (Meyer and Reguant-Closa 2017) and help fight climate change via reduced greenhouse gas emissions (Segovia-Siapco and Sabaté 2019). According to Springmann et al. (2018), the dietary change toward a plant-based diet could reduce relevant emissions by 56%. A plant-based diet saves resources in terms of energy, land, phosphate rock, and water (Carlsson-Kanyama and González 2009; Gerbens-Leenes and Nonhebel 2002). [1] The consumption of plant-based food can also increase personal health and reduce the risk of developing chronic diseases such as diabetes (Segovia-Siapco and Sabaté 2019; World Health Organization 2021). Yet, plant-based diets can be in conflict with enjoyment of meat, dietary habits, and health conceptions (Pohjolainen et al. 2015), which are common for sport venue visitors. Fandom, particularly football fandom in Europe, is associated with the consumption of alcohol and meat-based food (Cornwell and Koenigstorfer 2017; Ireland and Watkins 2010; Koenigstorfer 2018; Parry et al. 2017; Parry and Richards 2022). Forest Green Rovers, to our knowledge, is the only professional team that banned meat-based options from concession menus, causing some opposition among fans, particularly opposing fans (Parry et al. 2019). The meat ban can be seen as a first-time social tipping point for behavioural change toward a plant-based diet (Aschemann-Witzel and Schulze 2023). Thus, Forest Green Rovers provides an interesting case for the present research. In what follows, we describe the role of organizational values for corporations and sport organizations, respectively, in general before we consider the case of Forest Green Rovers.

3. The role of organizational values for sustainable consumer actions

Organizational values are an important part of strategic planning (George et al. 2019). By defining organizational values, managers point out what is important to the organization when bringing their (sustainability) mission to life (Galpin et al. 2015). Integrating environmental and green values in marketing programs can help organizations embrace environmentalism and increase organizational performance, while allowing marketers to promote corporate activities among stakeholders (Han et al. 2019; Papadas et al. 2017). If employees’ values align with organizational values (i.e., values are shared), employees are more productive and more loyal towards the organization (Kristof-Brown et al. 2005). Ethical values were also found to shape organizational culture and positively impact the organizational commitment of employees (Hunt et al. 1989). In particular, sustainability-related strategic planning (including the definition of relevant values) can inspire employees to adopt sustainable leadership practices (Morsing and Oswald 2009). This is why organizational values should be integrated into human resource management-related policies and practices in order to influence employees (Kerwin et al. 2014b).

Gehman et al. (2013) described in their value work theory how organizational values emerge and how organizations can perform values in practice to achieve a value discourse among stakeholders. The so-called “values practices” are “sayings and doings in organizations that articulate and accomplish what is normatively right and wrong, good or bad, for its own sake” (Gehman et al. 2013, p. 84). Values practices are manifested organizational norms, which are built in organizational culture, ethics or sustainability. “Values work” describe what is happening when “values practices emerge and are performed” (Gehman et al. 2013, p. 102) as well as the consequences of these performed practices. Gehman et al. (2013) outlined further how “values work processes”, that is, one of many “kinds of value work involved” (p. 105), can be described, referring to four domains: (1) dealing with pockets of concern; (2) knotting local concerns into action networks; (3) performing values practices; and (4) circulating values discourse (*Tab. 1*). These processes are useful in identifying the work “at any moment as values practices emerge and are performed, as well as the effects values practices perform and provoke as they work through an organization” (p. 102). Therefore, the theory of values work allows investigating how organizational and individual values are being shared over time. The present study relies on the theory of values work to explore how a professional sport organization’s sustainability-directed organizational values emerged and how they may promote the consumption of plant-based diets among fans, that is, an important area of sustainable action in the sport venue context.

Sustainable organizational values are particularly relevant to sport organizations regarding institutional expect-

Values work process	Definition
Dealing with pockets of concern	Stakeholders “address local, emergent pockets of concern” – these efforts serve “as temporary fixes” (p. 102).
Knitting local concerns into action networks	“Stakeholders and their value concerns [...] knotted together” – “bring[ing] together not only social and material elements, but individual and collective elements as well” (pp. 102–103).
Performing values practices	“Performativity [...] – values practices actively intervene in situations, contributing to the enactment of normative realities” (p. 104).
Circulating values discourse	“A semiotic resource for justifying the assessment and proliferation of values practices in disparate parts of an organization” (p. 104)

Tab. 1: *Values work processes according to Gehman et al. (2013)*

tations and strategic considerations (Babiak and Trendafilova 2011). First, within the sport industry (particularly team sports), environmentally sustainable behaviours can have a big impact on relevant sustainability outcomes. For example, competitions with other teams require team members’ transportation to different places (often done by plane to reduce the time that athletes sit when traveling; here, team footprint can be reduced); fans traveling to home and away games and producing high amounts of waste and requiring energy for transportation (here, visitor footprint can be reduced); there are many under-used venues (e.g., only during home games) and requirement of high amounts of energy during game day (here, the venue footprint can be reduced) (Alm et al. 2016; Collins and Flynn 2008; Dolf and Teehan 2015; Triantafyllidis et al. 2018). Second, teams and athletes are important role models in today’s societies (Carlson and Donovan 2013). The sport setting thus provides a context in which learning and education about sustainability can take place (Casper et al. 2014). Third, the UN acknowledged the particular role of sports for promoting sustainability and introduced sport-industry specific actions (e.g., the Sports for Climate Action on the Race to Zero, which has been signed by teams such as Forest Green Rovers and Liverpool F.C.). The signatories commit to five principles: (1) undertake systematic efforts to promote greater environmental responsibility; (2) reduce overall climate impact; (3) educate for climate action; (4) promote sustainable and responsible consumption through communication; and (5) advocate for climate action through communication (United Nations n.d.). To accept the role to contribute to sustainability in general and help reach the Paris Climate Change Agreement goals in particular, sport organizations should specify organizational values that fully embrace the sustainability concept.

Forest Green Rovers provides an example of a sustainably focused sport organization. Since Dale Vince became owner of the team, sustainability has been central to the team’s strategic operations. They were recognised as the world’s first carbon-neutral (United Nations 2019) and vegan football club (The Vegan Society 2017). Due to the changes in their daily operations (e.g., provision of vegan-only food; reduction of the team’s carbon foot-

print via several activities), the team gained attention from around the world and redefined their image (Samuel et al. 2022). Parry et al. (2019) highlight that Forest Green Rovers was able to overcome challenges to promote healthy food options and were successful in influencing dietary behaviours of fans. Yet, they do not provide evidence regarding why behavioural change in customers occur. In the following, we examine the organizational values that may promote the consumption of plant-based diets among fans.

4. Overview of the present studies

This study adopts a single case study, mixed-methods design, using qualitative and quantitative data to investigate Forest Green Rovers’ organizational values related to promoting plant-based diet consumption among fans. In general, the approach builds on qualitative and/or quantitative data, assesses whether the findings from different approaches match, and thus gains deep understanding of the case (Guetterman and Fetters 2018). The approach serves the research purpose of investigating how organizational values allow organizations to promote plant-based diets among customers, which is driven by a real-world context (Yin 2014). Forest Green Rovers was selected as a case due to the implementation of vegan food initiatives as part of their ongoing pro-environmental activities. Forest Green Rovers is the first vegan professional soccer club in the world, providing solely vegan food at their sport venues and to players. The sport organization markets their plant-based food option at their venues, explains the benefits of plant-based diets to game-day visitors, and shares videos and photos of plant-based activities and offerings via social media channels, cooperating with sponsors that provide plant-based food options. Thereby, the organization increases mass media interest and coverage (Sport Positive Leagues 2023), allowing them to reach out to more than three billion people since 2017 (United Nations 2019). The concept of sustainability is deeply anchored in the organizational values of the team.

First, a qualitative document analysis was conducted to explore Forest Green Rovers’ values work processes to-

wards fans. Second, a quantitative survey of a convenience sample of Forest Green Rovers fans was conducted to assess whether the behavioural change to adopt a plant-based diet among these fans is positively associated with team value internalization and, hence, fans' intention to eat plant-based foods in the future. We investigate the following hypotheses:

H1: There is a positive relationship between the adoption of a plant-based diet and internalization of team values.

H2: There is a positive relationship between internalization of team values and fans' intention to eat a plant-based diet in the future.

H3: Internalization of team values mediates the relation between the adoption of a plant-based diet and fans' intention to eat a plant-based diet in the future.

In what follows, we first present the results of the document analysis (Study 1) before we present the results of the survey (Study 2).

5. Study 1

5.1. Method

Document search and selection

First, documents were scanned, selected, and appraised (Bowen 2009). The procedure was based on the relevance of the documents (focus on sustainability activities that stimulate or implement change toward plant-based food offerings at Forest Green Rovers). Duplicates (mostly replicated reports by news sites) were eliminated. Videos and audio files were transcribed so that all documents were available in a text format. After this procedure, 44 documents (56,057 words in total) were examined to explore Forest Green Rovers' values work processes toward fans. The documents provide a rich context and data on what happened at the Forest Green Rovers in terms of change for sustainable development. All authors read the documents. Appendix 1 provides an overview of the documents that were included in the analysis.

Data analysis

A deductive-inductive approach was applied. By going through an iterative process and re-reading, we explored what Forest Green Rovers does to engage fans and make them connect to their values. This approach is in line with Yin's (2014) procedure for analysing case studies. The organization of important information into categories and the assignment of categories to themes in regard to the central phenomenon of the study were important steps in the document analysis (Bowen 2009). All documents were analysed using MAXQDA. The values work process framework from Gehman et al. (2013) was used

to deductively derive themes for the document analysis, which served as core concepts for the data analysis (Azungah 2018). Sentences and paragraphs were inductively coded, categorized, and then assigned to the respective themes.

Initially, 22 categories were identified by an open, analytical coding procedure. By going back and forth through all documents, sentences and paragraphs were coded based on the relevance for the research questions (Azungah 2018; Yin 2014). The initial lists of codes were compared, discussed, consolidated, and finally refined until no new codes emerged and no existing codes were eliminated any more. In a next step, codes belonging together were grouped into categories. All members of the research team engaged in this procedure and the final coding and categories was agreed upon to describe the values work processes of Forest Green Rovers. In total, there are 17 categories that resulted from the final exercise. Next these categories were named, defined, and aligned to the respective, deductively derived themes (revealing one additional theme compared to Gehman et al.'s [2013] processes: overcoming value constraints to build a holistic value system). *Tab. 2* presents an overview of the five themes, categories, and example statements.

5.2. Findings and discussion

The analysis revealed five themes: (1) dealing with pockets of concern; (2) knotting local concerns into action networks; (3) performing values practices; (4) circulating values discourse; as well as, in extension to Gehman et al.'s (2013) conceptualization, (5) overcoming value constraints to build a holistic value system. In what follows, we briefly describe these themes.

Dealing with pockets of concern

When Forest Green Rovers' team owner Dale Vince became the club's chairman in 2010, he immediately acted to address what he felt needed to be changed immediately. This is visible in the change of the concession menus, where red meat was taken off first. This action was only the beginning of a transformation to become a vegan football club.

“When we got involved in the club in 2010 it was like a rescue mission and we thought that we should bring the work we do at Ecotricity into the world of football and speak to a new audience. We knew we needed to make changes around energy, transport and food. It's like a universal slide rule; you can hold it up to the life of an individual person, a sports club, an organisation of any size – energy, transport and food are probably responsible for about 80 % of their carbon emissions.” (Campelli 2019a)

Interestingly, the club did not only target fans, but also players, as can be seen in the following statement made by Dale Vince:

Values work process	Categories	Example citation or quote
Dealing with pockets of concern ¹	Red meat ban Provision of vegan food only on-site to team members Provision of vegan food only at concession stands	“We did it over a period, a few years. First, we knocked red meat off the menu, day one here, I saw it, stopped it. Then it was white meat, then fish.” (FIFA 2022, 13:44–13:52; please note that FIFA reported on Forest Green Rovers)
Knotting local concerns into action networks ¹	Collaboration with like-minded partners	“Its current crop of partners includes: Grundon, a family-owned waste management firm with aspirations to recycle 100 % of its waste; Quorn, which helped the club achieve its vegan-only menu; Sea Shepherd, an international non-profit focused on marine conservation; and Ecotricity, the renewable energy company founded by Vince, which is the majority owner and principal sponsor of the club.” (Campelli 2020)
Performing values practices ¹	Highlighting beliefs and values Offering practicable solutions to opposers Use of practices as communication platform Reporting and monitoring practices	“Now, we are home to the first meat-free football menu. We did it for strong environmental and health reasons. We’re working to the principles of local, seasonal, fresh and organic food wherever possible.” (Ward 2013)
Circulating values discourse ¹	Life-changing moments Reinforcement via trials Influence on opponents Changes in the fan base Resolving discourses	“It’s funny enough that it’s the big question that we get asked by all other clubs that are interested in what we do: ‘How on earth’ they say ‘can we take our fans or our club vegan without getting lynched or having a riot or something like that’. It’s a funny conversation. It’s also the issue that’s given us all of the publicity. The fact that we’re a vegan football club and just how improbable that seems that you can combine those two things. I mean you know this is football it’s a kind of a macho world, isn’t it? But you know what we’ve found is that football fans are just normal people just ordinary people. Not really different to anybody else. So, I’d say food, food is a really quick, easy, big change to make and that’s what I tell everybody.” (Animal Rebellion 2021, 9:10–9:50)
Overcoming value constraints to build a holistic value system ²	Systemic approach Value internalization Relatedness between sustainable and sporting success Player beliefs about healing power of vegan food	“I would say our fans don’t just tolerate this change that we’ve made (toward vegan food offerings only; <i>added by the authors</i>), they’re very proud of it, they’ve embraced it and I’m really pleased with that in particular.” (Animal Rebellion 2021, 6:22-6:30). “In fact, many of the fans themselves are replicating their team’s green vision by becoming vegan, buying electric cars, and living more sustainably.” (United Nations 2019)

Notes: ¹ See Tab. 1 for definitions of the process. ² The definition for this new process is as follows: creation of an overarching value system that overcomes barriers and allows fans to internalize team values.

Tab. 2: Values work processes identified for Forest Green Rovers in Study 1

“Day one here of being in charge of the football club, I bumped into my first thing. We were serving a beef lasagne to our players, and I sat down immediately with the chef and the manager and said, we can’t do this, so we took red meat off our menu on day one of being in charge.” (Bloomberg Originals 2022, 5:00–5:15)

Knotting local concerns into action networks

The action network that was built up over time mostly included sponsors with a similar mission, allowing Forest

Green Rovers to attract sponsors “that other clubs at our level won’t get, don’t get.” (Bloomberg Originals 2022, 12:38–12:42). The Economist (2022) wrote that, “its philosophy has attracted sponsors like Oatly, a non-lactose milk company, and Innocent, which sells fruit smoothies.” Tab. 2 presents examples of other similar-minded sponsors. Even the grounds keeper (grounds serviceman) is part of the network, as can be seen here:

Adam Witchell [...] joined the club four years ago after earning a reputation in the industry for his plant-based approach to feeding nutrients into his soil and

combating the spread of fungus. (...) What has been surprising, at least for Witchell himself, is how his life has changed as a result of this union. “I never used to eat vegan food but my whole family now eats vegan meals at home,” Witchell said. “I drive an electric car, I’m conscious of my carbon footprint, I make sure I know where all the plastic I use ends up.” Witchell continued: “It’s incredible what can happen when you have a leader like Dale. You get swept up by his passion. This football club has got so many people thinking about the environment.” (Gallan 2019)

Performing values practices

With the action network in place, the club performed several values practices, that is, all the activities involved to become a vegan football team. These practices can be seen at various levels, such as in the reactions of fans and players, the employees, and the media coverage. For example, one employee said the following:

“We went vegan. People said food sales are going to drop. But no, fantastic. They have kind of rocketed.” (FIFA 2022, 19:55–20:00)

Dale Vince further explained:

“We’re just setting the menu and every organization does that. We’re doing it according to our principles and we’ll explain to you what’s wrong with red meat from the environmental, the animal rights and the human health perspective as well. So, we took our fans on a journey from that point with that big kind of bold decision right at the beginning, and everything that we’ve done, we’ve explained to them and explained the reason why, and we’ve shown them how, uh, you know, they can do the same things at home.” (Animal Rebellion 2021, 5:57–6:22)

Yet, the practices were subject to opposition not only from their own fans, but also from fans of opposing teams. Especially, Dale Vince was perceived negatively by some fans, who did not share his beliefs and were sceptical towards vegan food; also, some fans claimed that “it’s all for PR purposes” (Campelli 2018b).

Circulating values discourse

The justification and proliferation of values practices can be seen in some example statements provided in *Tab. 2*. Often, discourses were around food trials and taste, as can be seen in the following statement:

“When we went vegetarian and then vegan some of the supporters didn’t like it, because traditionally football supporters like their burgers and their sausage rolls, and whatever. But when the quality was sampled, most people have come on side and a lot of people really do enjoy the vegan food there. I’m vegan when I travel with the club normally as the players are. But no, I do meat occasionally, mainly white

meat, but I love vegan food. Especially that cooked by the chef Jada of Forest Green. It’s excellent and we find that with a lot of away supporters and certainly visiting directors, they are very praiseworthy about the food that’s served up.” (Football Daily 2019, 4:25–5:10)

Dale Vince explained in an interview that it is important to try the vegan food to overcome preconceptions as he recognized that “lots of [...] fans have tried it and they’ve gone vegetarian and vegan themselves at home. Our players have done the same” (Football Daily 2019, 6:09–6:14).

With these practices, however, the club may have lost some fans who were still not happy with the decision. Also, the club may have recruited new fans, as can be seen in the following statement:

“So those changes were quite hard, I think, and I think some of the fan base moved away from the club as a consequence of that, but we’ve introduced a whole new set of supporters and followers who really like what the club stands for now.” (Bloomberg Originals 2022, 5:58–6:15)

Overcoming value constraints to build a holistic value system

The systemic approach to sustainability can be seen in the following statement:

“All-vegan menus. An organic pitch. A current stadium powered by renewable energy and plans to build a new, all-timber stadium designed by the studio of legendary architect Zaha Hadid. Forest Green Rovers has the quirky yet uncompromising characteristics to achieve cult status, especially in the eyes of those who care deeply about environmental stewardship as well as the beautiful game.” (Campelli 2018b)

In regard to plant-based food in particular, there are various statements that showcase that sustainable team values have been internalized by important fan groups, players, and staff members. Even team managers from opposing teams showed interest in adopting food items on their concession-stand menus. The importance of the concept of team value internalization can be seen in the exemplary statements in *Tab. 2*, as well as in Dale Vince’s reported observation that “he’s seeing more and more players and fans adopting those values into their own lives.” (Sharpe 2022). The statements reveal that fans often embrace and replicate what the team stands for and aims for in regard to the promotion of plant-based food (see *Tab. 2*).

To conclude, we can state that Gehman et al.’s (2013) conceptualization of values work processes helps describe how Forest Green Rovers present themselves – in terms of organizational values – to fans. Yet, we identified another theme: overcoming value constraints to build a holistic value system. When such a systematic

approach is taken by an organization, value internalization, that is, the extent to which values and behaviours of organizations are accepted and adopted in one's own value system (Kelman 2006), seems to be crucial to stimulate behavioural changes in daily life, such as the adoption of a plant-based diet. To assess whether not only the team, but also fans, changed their behaviours, and to find out whether team value internalization helps explain behavioural intentions of fans to adopt plant-based food in the future in their daily life, we conducted a survey. The method and the results of the study will be presented in what follows.

6. Study 2

6.1. Method

Procedure

A questionnaire was distributed to fans of Forest Green Rovers, using the online fan forum of Forest Green Rovers, providing a link to the study in an email newsletter of Forest Green Rovers Supporters Club, and making Forest Green Rovers fan Facebook group members aware of the study. We aimed for a sample size that was as large as possible, but with a minimum of 78 fans to meet the sample-size requirements outlined by Fritz and MacKinnon (2007) for detecting mediation effects for percentile bootstrapping, assuming a medium effect size ($f^2 = .39$) for the path from the independent variable to the mediator as well as for the mediator to the dependent variable (power = .80).

Participants

In total, 111 participants filled out the questionnaire. Four participants were excluded due to missing information. Thus, the final sample consists of 107 participants (Tab. 3). The sample mainly consists of male fans (similar to what was found in previous studies; Casper et al. 2017; Harris and Ogbonna 2008). A Monte Carlo power analysis for mediation models was completed. It reveals that the sample size of 107 participants leads to a projected power of .82, meeting the recommended level of .80 (Schoemann et al. 2017). Thus, the survey was ended when we had collected data from 111 participants. No compensation was provided to the fans, but they were offered to be informed about the results of the study. This might explain the relatively small sample size.

All procedures were in accordance with the ethical standards of the Faculty Board of the university, which acts as the local ethics committee for studies outside the Faculty of Medicine and approved the study, and with the 1964 Helsinki declaration and its later amendments.

Measures

Tab. 4 provides an overview of items and variables used in the study. First, participants were asked about their

Characteristics	Frequency (%)
Gender (male)	86.9
Age (20 years or younger)	0.9
(21-30 years)	6.5
(31-40 years)	12.1
(41-50 years)	13.1
(51-60 years)	21.5
(61-70 years)	30.8
(71 years or older)	15.0
Education (Primary school)	5.6
(Secondary school)	30.8
(Trades school)	11.2
(Bachelor degree)	34.6
(Master's degree)	17.8
Income (£25,000 or less)	29.9
(£25,001 - £50,000)	42.1
(£50,001 - £75,000)	12.1
(£75,001 - £100,000)	2.8
(£100,001 or more)	1.9
(I prefer not to answer)	11.2
Hometown	
(Gloucestershire)	44.9
(Nailsworth)	12.1
(London)	5.6
(South West England)	7.5
(England)	8.4
(Great Britain but not England)	4.7
(Outside Great Britain)	16.8
Dietary preferences before becoming a Forest Green Rovers fan	
(Omnivore)	76.6
(Vegan/Vegetarian)	23.4
Dietary preferences after becoming a Forest Green Rovers	
(Omnivore)	45.8
(Vegan/Vegetarian)	54.2

Tab. 3: Sample characteristics for Study 2

current diet ([mostly] vegan/vegetarian or omnivore). [2] Next, they were asked to state whether their diet was vegan/vegetarian or omnivore before they became fan of Forest Green Rovers. This allows us to assess whether the diet had changed toward vegan/vegetarian (coded 1) or whether it remained the same (coded 0). [3] The mean was constructed accordingly ($M = .31$, $SD = .46$). The four-item value internalization scale was taken from Inoue and Kent (2012) ($\alpha = .90$). The five-item scale of environmental personal norms was taken from Scherbaum et al. (2008) ($\alpha = .82$). The variable is an important descriptor, as identified in previous studies on sustainable food consumption (e.g., Floress et al. 2022). We therefore included the variable as another predictor. Behavioural intention to eat a plant-based diet in the future was assessed with four items adapted from Povey et al. (2001) ($\alpha = .88$).

Scale anchors as reported in original studies were used. Team value internalization and behavioural intention to

Variables	Items	Mean	SD
Diet change		Yes	No
	Were you vegan or vegetarian before you became a fan of the Forest Green Rovers?*	23.4%	76.6%
	Are you vegan or vegetarian now?*	54.2%	45.8%
Internalization of team values		5.07	1.58
	What [the team] stands for is important to me.	5.72	1.65
	If the values of [the team] were different, I would not be as attached to them.	5.54	1.44
	The reason I prefer [the team] to others is because of what they stand for, their values.	4.82	1.99
	I find that my values and [the team's] values are very similar.	4.21	2.07
Environmental personal norms		3.74	.40
	Conserving natural resources is important to me.	3.79	.44
	Conserving natural resources is not my problem. (reverse-coded)	3.79	.50
	I should help conserve natural resources.	3.73	.56
	Sport and recreational organizations should conserve natural resources.	3.71	.53
	I have a responsibility to conserve natural resources.	3.69	.59
Intention to eat a plant-based diet		4.01	1.76
	I intend to eat a more plant-based diet.	5.34	1.64
	I intend to eat a vegetarian diet.	3.98	2.18
	I intend to eat a diet which contains meat. (reverse-coded)	3.71	2.15
	I intend to eat a purely plant-based diet.	3.03	2.19

Notes: SD = Standard deviation. A seven-point rating scale was applied for internalization of team values and the intention to adopt a plant-based diet. A four-point rating scale was applied for environmental personal norms. *Values are presented in percent ($n = 107$).

Tab. 4: Variables, means, and standard deviations for Study 2

eat a plant-based diet were measured via a seven-point rating scale (anchored at 1 [lowest rating] and 7 [highest rating]). Environmental personal norm was measured via a four-point rating scale (anchored at 1 [lowest rating] and 4 [highest rating]).

Model and analysis

SPSS 29.0 was applied to calculate means, standard deviations, and bivariate correlations as well as to examine associations between variables. To test whether the change toward a plant-based diet when fans became a fan of the team is positively associated with team value internalization, and whether the latter mediates the relation to fans' intention to eat plant-based foods in the future, a mediation model was tested. We used Hayes' (2018) PROCESS model 4 with 5,000 bootstrap samples.

Before the analysis, a confirmatory factor analysis was performed using Mplus to assess the measurement model and examine the validity and reliability of the latent variables. The model fit was assessed via several indices: chi-square degree of freedom ratio (χ^2/df), which should be less 3, the root mean square error of approximation (RMSEA), which should have a value less than .08, the standardized root mean square residual (SRMR), which should have a value less than .08, and the comparative fit index, which is acceptable when greater than .90, were considered (Hoe 2008). Further, discriminant and convergent validity as well as reliability of the latent variables were assessed. Construct reliability (CR) should be above .70 and average variance extracted (AVE) above .50 (Fornell and Larcker 1981).

6.2. Findings and discussion

The model fit was satisfactory ($\chi^2/df = 84,14/62$ (1.36), $p < .001$; CFI = .97; TLI = .97; RMSEA = .058 [90 % CI: .02; .09]; SRMR = .078). The CRs of the resulting factors were above .70 and all AVE values of the used factors were above .50 (Fornell and Larcker, 1981). Tab. 5 provides an overview of the correlations between factors, AVEs, and CRs.

The model explains 40.7 % of variance in behavioural intention to eat a plant-based diet in the future and 15.3 % of the variance in team value internalization. Tab. 6 provides an overview of the results of the model testing. The relationship between change toward a plant-based diet and team value internalization is positive and significant ($\beta = .85$, SE = .31, $p = .007$). Also, environmental personal norms positively relate to team value internalization ($\beta = 1.13$, SE = .36, $p = .002$). Consistent with our assumptions, team value internalization relates positively with intention to eat a plant-based diet in the future ($\beta = .67$, SE = .10, $p < .001$). The indirect effect of change toward a plant-based diet on intention to eat a plant-based diet in the future is positive and significant ($\beta = .57$, SE = .20, CI [.201; .987]). Thus, team value internalization acts as a mediator and all three hypotheses are supported.

We note that environmental personal norms are not associated significantly with the intention to eat a plant-based diet in the future ($\beta = .52$, SE = .35, $p = .15$). The direct path from change toward a plant-based diet to the dependent variable is not significant ($\beta = -.17$, SE = .30, $p = .57$), indicating full mediation for the present variables (MacKinnon et al. 2007).

Factors	CA	CR	AVE	1	2	3	4
1 Change toward a plant-based diet	/	/	/	/			
2 Internalization of team values	.90	.91	.72	.27*	.85		
3 Environmental personal norms	.82	.83	.52	.07	.30***	.72	
4 Intention to eat a plant-based diet	.88	.91	.66	.12	.63***	.30***	.81

Tab. 5: Correlations between variables as well as evidence for convergent and discriminant validity (Study 2)

Notes: CA = Cronbach’s alpha, CR = Construct reliability, AVE = Average variance extracted; square roots of AVE are shown on diagonal (values in bold); values outside the diagonal represent the correlations between the constructs (row 1–4); * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed)

Direct effects	β	SE	CI 95%
Change toward a plant-based diet → Team value internalization	.85**	.31	[.235; 1.457]
Environmental personal norms → Team value internalization	1.13**	.36	[.420; 1.841]
Change toward a plant-based diet → Intention to eat a plant-based diet	-.17	.30	[-.766; .421]
Team value internalization → Intention to eat a plant-based diet	.67***	.10	[.490; .854]
Environmental personal norms → Intention to eat a plant-based diet	.52	.35	[-.182; 1.212]
Indirect effect			
Change toward a plant-based diet → Team value internalization → Intention to eat a plant-based diet	.57	.20	[.201; .987]

Notes: $n = 107$; * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed).

Tab. 6: Evidence on the mediating effect of internalization of team values (Study 2)

7. General Discussion

7.1. Theoretical implications

The goal of the study was to examine the role of Forest Green Rovers’ organizational values to promote the consumption of plant-based diets. The study contributes to existing research in the following ways. First, Gehman et al. (2013) values work processes are extended by a fifth domain, as identified in the qualitative part of the study (the document analysis): overcoming value constraints to build a holistic value system. This is accompanied by internalization-of-values practices by customers. Here, values of an organization are adopted in one’s own value system (Kelman 2006). In the quantitative part of the study (the survey), we found that value internalization is crucial to explain behavioural intentions to act sustainably (eat plant-based food). Inoue and Kent (2012) also noted the mediator role of team value internalization.

Second, to understand values work processes in the domain of sustainable organizational actions, it is important to describe how concerns emerge. At Forest Green Rovers, local concerns about current behaviours (e.g., electricity provision, waste management, and food provision) were knotted together and tackled from the start when Dale Vince became team owner. They attracted new sponsors focusing on similar aspects and communicated their role-model approach to a wider audience, potentially allowing them to attract new fans. As a consequence, values practices were performed by Forest Green Rovers. Through discourse, values were circulated among stakeholders. While the implementation of vegan-only offerings was opposed by some stakeholders, most likely

due to eating routines or meat enjoyment (Pohjolainen et al. 2015), the club managers explained their position to promote plant-based diets to create a common understanding for the necessity of the changes (Parry et al. 2019). Such internal marketing communication was needed to get support to change for the better. As the document analysis revealed, setting the menu to vegan-only offerings helped Forest Green Rovers inform and educate their fans and stakeholders about the benefits of plant-based food. Forest Green Rovers was able to stimulate the value discourse. Many fans started to sample new offerings, which allowed them to assess the quality, and they mostly enjoyed plant-based food trials. Additionally, by offering solely plant-based food options to fans, Forest Green Rovers may have created a social tipping point, encouraging fans to change their dietary behaviours in the long run (Aschemann-Witzel and Schulze 2023). This conceptualization of values work processes agrees with Gehman et al.’s (2013) conceptualization. It describes how an organization, via changing processes and offerings towards sustainability, can promote sustainable development among stakeholders and customers. By the integration of sustainable organizational values in their marketing efforts, Forest Green Rovers was able to build up relationships with important stakeholders, such as sponsors and media, and increase their organizational performance, according to self-reports (Han et al. 2019; Papadas et al. 2017).

Lastly, Forest Green Rovers’ systemic approach to adopt plant-based foods helped overcome value constraints and build a holistic value system. Establishing sustainable values and a sustainable organizational culture likely made most fans internalize these values into their own

value system (Galpin et al. 2015; Kelman 2006; Kristof-Brown et al. 2005). This highlights the downstream consequences of important sustainability practices, such as food trials, embedded in a holistic value system, to stimulate behavioural change in fans. In our case, plant-based food consumption in the future was the relevant outcome variable.

7.2. Managerial implications

The present research highlights how sport organization managers can influence fans' (stated) eating behaviour. By creating a holistic sustainable value system and allowing stakeholders to internalize organizational values (Kelman 2006), sport organizations may direct fans toward eating more plant-based foods. While the implementation of a holistic sustainable value system is a long-term process, other organizations can refer to the values work processes and assess where they fall on the continuum, and then act accordingly to become more environmentally friendly. Especially in sports, a field in which brands are often perceived as similar (Stadler-Blank et al. 2018), promoting sustainable values may help clubs to get in a prime position for sponsors with similar values (Cornwell and Koenigstorfer 2017). Additionally, certain fan segments might be attracted by the club's positioning around environmentalism (Casper et al. 2017). Forest Green Rovers is a salient exemplar for how a sport organization can provide sustainable and healthy food options at game days, which allow fans to experience, and eventually enjoy, plant-based food options (Lea et al. 2006; Parry et al. 2019), with important consequences for behavioural sustainable actions in the future.

7.3. Limitations and outlook

The present study has some notable limitations. One key limitation is the use of cross-sectional data in Study 2. It would be beneficial to collect longitudinal data and find out in how far fans internalize team values, and change their diets, over time. Yet, change within and outside organizations takes place over the course of years and changes in team ownership are often not announced to the public (and hence researchers). Thus, future studies may use insider knowledge and accompany teams that change toward sustainable development due to critical incidents, such as change in team ownership. Also, the sample is not representative for all Forest Green Rovers fans. Particularly, a focus on individuals who became fans since (or because of) Dale Vince became owner of the team would have been desirable. In our study, unfortunately, we did not ask fans to remember exactly when and why they became fans of the organization. Asking participants these questions will be valuable to more exactly trace back when and why behavioural changes may have occurred. Future research may assess these variables in empirical studies. Another key limitation is the reliance on insights from one sport organization only. Thus, the generalizability of the findings remains unknown. In future research,

event studies may be used to assess the influence of critical incidents, such as change in team ownership, on sustainability indicators. Such event studies may be conducted inside or outside the team sport setting.

8. Conclusion

Sport organizations can encourage plant-based food consumption among fans by promoting sustainable organizational values to fans. Thus, sport organizations and their athletes may be important role models, even though many sport events and venues are not environmentally sustainable. Before organizations engage in shaping sustainable values, they are recommended to identify and link stakeholder concerns. Values practices can tackle concerns and create a value discourse. This helps overcome barriers and infuse sustainable organizational values within the organization and among stakeholders. The results of this study are meaningful for organizations outside the sports industry, too. By adopting and implementing sustainable organizational values, organizations might leverage their marketing activities directed at own employees and relevant stakeholders outside the organization as well as make a positive contribution to sustainable development.

Notes

- [1] Indeed, meat production is one driver of environmental problems, particularly against the background of the increasing global population, and is known to promote the loss of biodiversity, climate change, and the degradation and pollution of land and water (Vermeulen et al. 2012).
- [2] In agreement with the World Health Organization's (2021) definition of plant-based diets, mostly vegan/vegetarian and vegan/vegetarian were considered as one category.
- [3] None of the participants stated that their diet had changed from vegan/vegetarian to omnivore.

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Keywords

Sustainable food, Veganism, Vegetarianism, Value internalization, Sport ecology

Essay 2

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Sport teams' promotion of plant-based food consumption among fans

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ABSTRACT

The study's goal is to examine the downstream relations of fan awareness of a favorite sport team's pro-environmental food initiatives, considering fans with different degrees of team identification. Building upon the Awareness-to-Action Continuum, the authors propose two pathways that may help explain reported plant-based food consumption among fans (i.e. eating vegetables, eating vegan food, and avoiding meat), particularly at high (vs. low) degrees of team identification: team value internalization and fan-team personality match. Study 1 surveyed 799 fans of 12 different sport teams from various countries, which had implemented pro-environmental food initiatives in the past. Study 2 used a survey-experimental design to manipulate identification with one selected team from the U.S. ($n = 356$ fans) and assessed the downstream relations of fan awareness of the team's pro-environmental food initiatives. The authors control for attitude and subjective norm in their analyses and show that the levels of team identification associate with the relation between fan awareness and reported consumption of plant-based foods via fan-team personality match but not via value internalization. Ironically, the perception of the team's personality as superior to their own personality among low-identification fans is negatively related to the adoption of a plant-based diet despite high awareness levels.

KEYWORDS

Environmental sustainability; sustainable consumption; team identification; internalization of team values; fan-team personality match; sustainable food behaviors

Introduction

The consumption of plant foods (fruits, vegetables, grains, legumes, nuts, and seeds) not only has health benefits, but helps fight climate change via reduced greenhouse gas emissions (Segovia-Siapco & Sabaté, 2019). The World Health Organization (2021) defines plant-based diets as diets that “constitute a diverse range of dietary patterns that emphasize foods derived from plant sources coupled with lower consumption or exclusion of animal products” (p. 1). Yet, it can conflict with people's meat enjoyment and habits (Pohjolainen et al., 2015). This is particularly true for sport fan consumption contexts, such as in-stadium environments, where meat-based options often predominate (Parry et al., 2017, Williams & Williams, 2013).

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Still, more and more professional sport teams strategically promote plant-based diets in stadium environments to not only reduce their own carbon footprint, but also encourage fans to choose more sustainable food options (Henly & Krenza, 2015). Within the context of the promotion of plant-based diets, it is of great interest whether fan awareness of the teams' initiatives relates positively to plant-based food choices in daily life. Yet, there might be differences in relations between lowly and highly identified fans. Lowly identified fans were found to support pro-environmental activities of sport organizations more strongly compared to highly identified fans (Casper et al., 2017). The authors identify a cluster of highly pro-environmental, but lowly identified fans who stated that the team's pro-environmental activities made them more likely to purchase game-day tickets, take part in pro-environmental activities on game-days, and undertake pro-environmental activities at home. In another study on student fans, no differences between lowly and highly identified students were found regarding the relations between a favorite team's environmental practices and behavioral intentions to engage in daily pro-environmental behavior (Inoue & Kent, 2012b). Our study aims to resolve these inconsistencies by assessing downstream relations of fan awareness of a favorite sport team's pro-environmental food initiatives, considering highly and lowly identified fans and looking at the adoption of plant-based diets, according to self-reports.

To explain the mechanisms of potential differences in relations between highly and lowly identified fans, two factors might be relevant: (1) internalization of team values, that is, fans' congruent value system given how they see the team and act (Inoue & Kent, 2012b, Pape et al., 2023), and (2) fan-team personality match, that is, the match between the self-evaluation of one's own personality and the personality of the team (Rickson, 2021). The following research question guided our research: Do internalization of team values and fan-team personality match explain differences in relations between fan awareness of a favorite sport team's pro-environmental food initiatives and the adoption of plant-based diets?

The present study uses the Awareness-to-Action Continuum as the theoretical lens because it allows for the consideration of these mediators that may help explain how and when fan awareness may relate positively to sustainable consumption practices (here: plant-based food). The study contributes to the literature in sport management in the domain of both food provision to fans (specific context) and sustainable development (broad context). Specifically, we show that fan awareness does not always relate positively to the adoption of plant-based diets. This is because lowly (but not highly) identified fans perceive the team's personality as superior to their own personality. We identify team identification as one important boundary condition that has not been considered before in this context (e.g., Walker & Kent, 2013).

Referring to the broad context of sustainable development, the study's findings largely support insights from previous studies that revealed positive relations between a sport team's pro-environmental fan engagement initiatives and identified fans' behavioral intentions to act sustainably at events and in their everyday lives (see Appendix for an overview of studies). Trail and McCullough (2021) pursue a holistic approach and longitudinally modeled the decision-making processes of fans. They not only explain sustainable fan behaviors during games, but also sustainability advocacy and sustainability behavioral change intentions in the community. Inoue and Kent (2012b), in contrast, follow a focused approach with the aim to explain differences in relations between highly

and lowly identified fans (similar to the goal of the present study). They consider the mediating role of value internalization and the moderating role of team identification. By revealing how and when fans may adopt plant-based diets, we extend Inoue and Kent's (2012a) conceptual frame. In what follows, we introduce the theoretical framework of our work before we present and discuss the results of two empirical studies.

Theoretical framework

To better understand fan responses to pro-environmental initiatives, scholars tested models that are based in fields such as environmental sustainability, consumer behavior, and marketing (Appendix). They consider the following domains: waste-management behaviors, such as recycling; energy-saving behaviors, such as carbon offsetting; mobility behaviors, such as active vs. passive traveling; and dealing with scarce resources in general (Casper et al., 2014, Casper et al., 2017, Martin et al., 2015, McCullough & Cunningham, 2011, Trail & McCullough, 2018, 2020, 2021). One void in the research relates to the pro-environmental food choices made by fans. Next, we develop our arguments on how fans become aware of their favorite team's pro-environmental food initiatives, what the potential downstream associations of high awareness levels are, and what factors relate to the adoption of plant-based diets in daily life.

Awareness-to-action continuum

Barnes' (2013) Awareness-to-Action Continuum describes how individuals become ecologically literate during their lives. According to Barnes (2013), there are five phases: (1) awareness and appreciation, (2) knowledge and understanding, (3) attitudes and values, (4) problem solving skills, and (5) personal responsibility and action. While phases (2) and (4) are peculiar for the acquaintance of literacy, phases (1), (3), and (5) are part of communications models in the fields of social psychology, marketing, and media (e.g., Do Paço et al., 2013). In the present context, phase (1) relates to fan attentiveness to a team's pro-environmental diet initiatives. In phase (3), attitude relates to a fan's favorable or unfavorable evaluation of pro-environmental diets. Beside attitude, values and personality factors matter (Barnes, 2013; in the present context of team sports, we refer to *team value internalization*; Inoue & Kent, 2012a; and *fan-team personality match*; Kristof, 1996). In the final phase, fans' responsibility and action can be seen in the levels of sustainable consumption (here: plant-based diets). In what follows, we define each of the main components of the model and make assumptions about their interrelationships.

Fan awareness of a team's pro-environmental food initiatives and its downstream relations

Fan awareness of a favorite team's pro-environmental food initiatives can be defined as "the perception of the activities [here: pro-environmental food initiatives; *added by the authors*] being carried out by members of a team [here: the favorite sport team; *added by the authors*] in a given context" (Gallego et al., 2011, p. 454; see also Barnes, 2013). According to the Awareness-to-Action Continuum, awareness is a prerequisite for important downstream relations to occur (Barnes, 2013). There are two alternative views of how

fan awareness of a team's pro-environmental food initiatives may relate to the consumption of a plant-based diet.

One view is that fans internalize team values, that is, they adapt their own value system if they perceive that team values are changing (here: becoming more sustainable; Inoue & Kent, 2012a). Internalization of values describes the extent to which values and behaviors of other people or organizations are accepted and adopted in one's own value system (Kelman, 1961, 2006). Values are accepted when people perceive that behaviors are congruent to their own values. Their value system changes and people adopt organizational behaviors as guiding principles (Ashforth & Mael, 1989, Kelman, 1961, 2006). Awareness may positively relate to value internalization because the high awareness of a concept makes people reflect on value-relevant own behaviors in relation to the concept (here: sustainable development). Most importantly, sustainable behaviors have a positive connotation (since they are desirable and perceived favorably in society; Corral Verdugo, 2012) and matter in the context of fandom (since eating is a habitual part of following sports games and fandom; Koenigstorfer, 2018), particularly when fans perceive a match between pro-environmental initiatives and sport teams (McCullough & Trail, 2023). Indeed, fans can perform value-relevant own sustainable behaviors in daily life (Inoue & Kent, 2012a). Thus, we hypothesize the following:

H1: There is a positive relationship between fan awareness of a sport team's pro-environmental food initiatives and team value internalization.

Another view is that fans change their perception of an organization's personality compared to their own personality, and act accordingly. When individuals become aware and eventually gain knowledge about pro-environmental initiatives, they not only eventually internalize values based on organizational values, but they also evaluate an organization's personality, that is, the set of human characteristics associated with a brand [here: the favorite sport team; *added by the authors*] (Aaker, 1997, p. 347), and relate the organization's personality to their own personality (Kristof, 1996). Personality perception is part of the Awareness-to-Action Continuum's cognitive evaluation stage (3). Indeed, individuals seek for congruency between their own personality and a brand's (here: a team's) personality (Sirgy, 1982). In the present context, the team personality may be evaluated more positively (relative to one's self-evaluation) with increasing awareness levels, because pro-environmental values are desirable (Stadler-Blank et al., 2018). The positive perception may be due to the match between the team's non-sport related activities and the team itself (McCullough & Trail, 2023). Fan-team personality match can be defined as "the compatibility between people [here: fans; *added by the authors*] and organizations [here: teams; *added by the authors*]" (Kristof, 1996, p. 4). The resulting personality match is meaningful because a team often becomes part of fans' identity (see Belk, 1988, for conceptual arguments, and Derbaix & Decrop, 2011, for empirical evidence). High awareness levels of a team's pro-environmental initiatives might negatively relate to fan-team personality match. If fans are highly aware of initiatives, they might feel that the team's personality increases compared to one's own personality (i.e.,

the team is rather superior than inferior; Derbaix & Decrop, 2011). Thus, we hypothesize the following:

H2: There is a negative relationship between fan awareness of a sport team's pro-environmental food initiatives and fan-team personality match (i.e., the degree to which fans perceive their own personality compared to the team's personality).

Mediating roles of team value internalization vs. fan-team personality match

The downstream relations of value internalization have been proposed in Kelman's (1961) landmark article on processes of opinion change and researched in the psychology literature (e.g., Hannah et al., 2016). Kelman (1961) argued that one important downstream relation of internalization is "relevance of values to issue" (p. 67; the issue in the present case is sustainable development). This means that the "behavior [...] manifests itself whenever the values on which it is based are relevant to the issues at hand", even when it is "idiosyncratic, flexible, and complex" (as seen for dietary behavior) (Kelman, 2006, p. 6). These assumptions are in agreement with the propositions from the Awareness-to-Action Continuum. In the team sport context, Inoue and Kent (2012a) argued that the degree to which fans internalize a team's values may relate to fans' daily pro-environmental behavior, grounding their hypothesis in Kelman's (2006) work. They found a positive relationship between value internalization and pro-environmental behavior as well as behavioral intention to support a pro-environmental initiative. Accordingly, we hypothesize that internalization relates positively to the consumption of plant-based food, and that internalization functions as a mediator of the relationship between fan awareness of a sport team's pro-environmental food initiatives and fans' reported consumption of plant-based food. The mechanism can be explained by fans' willingness to adopt values for identity-expression purposes (Inoue & Kent, 2012a). H3 and H4 are stated as follows:

H3: There is a positive relationship between team value internalization and fans' reported consumption of plant-based food.

H4: Team value internalization mediates the relation between fan awareness of a sport team's pro-environmental food initiatives and fans' reported consumption of plant-based food.

The downstream relations of organization-person match have been postulated in the Action-to-Awareness Continuum and studied mostly in the context of human resources, revealing positive relations on important downstream variables, such as job satisfaction, loyalty to the organization, commitment, as well as performance-, attraction-, and tenure-related factors (dos Santos & de Domenico, 2015). In sport management, personality match has been considered for sponsored athletes and sponsors, with positive downstream consequences on behavioral intentions to

purchase products from the sponsor (e.g., Dees et al., 2010). Thus, there is both conceptual and empirical evidence for positive relations with approach behaviors and behavioral intentions. One can therefore assume that high levels of self-perception (e.g., self-esteem), reflective of high personality match, make fans themselves engage in pro-environmental behaviors (here: adopt plant-based diets). We hypothesize that the match in personality between the fan and the team relates positively to the consumption of plant-based food, and that personality match functions as a mediator of the relationship between fan awareness of a team's initiatives and fans' consumption of plant-based food.

H5: There is a positive relationship between fan-team personality match and fans' reported consumption of plant-based food.

H6: Fan-team personality match mediates the relation between fan awareness of a sport team's pro-environmental food initiatives and fans' reported consumption of plant-based food.

Moderating role of team identification

Identification describes the process by which group influence is accepted because a relationship should be established or maintained (Ashforth & Mael, 1989, Mael & Ashforth, 1992). When individuals identify with objects, they classify themselves in categories based on specific characteristics. Highly identified individuals perceive to belong to a certain group, which helps them form a social identity (Ashforth & Mael, 1989). For example, highly identified organizational members (fans) have been described to refer to "we" rather than "they" when talking about their organization (favorite team) (Mael & Ashforth, 1992; see Inoue & Kent, 2012a, for the sport context).

In one of their seminal studies, Wann and Branscombe (1990) found that fans high in team identification bask in reflected glory (BIRG) more and cut off reflected failure (CORF) less compared to fans low in team identification. Most importantly to the present study, highly identified fans differ from lowly identified fans not only with regard to the degree to which they intend to attend sports games or are willing to invest time and money into a team, with highly identified fans acting more closely according to their motives (Kim et al., 2013), but also with regard to the degree to which they integrate new information about their team into their own value system and personality. For example, even the relocation is no reason for some highly identified fans to stop connecting with, and caring about, the team (Foster & Hyatt, 2007). Regarding sustainable consumption, Casper et al. (2017) found that a cluster of lowly identified fans responded more positively to a team's pro-environmental initiatives and could be considered a more attractive target group when promoting sustainability activities. In the present context, highly identified fans might be more likely to perceive the team's values as similar (arguing for positive relations via internalization), but less likely to perceive their own personality as superior relative to the team's personality (arguing for negative relations via fan-team personality match)

with increasing awareness levels. For the latter relationship, lowly identified fans may be particularly prone to act according to (high) relative evaluations of their own personality. H7a and H7b are postulated as follows:

H7: The mediation (a) via team value internalization is stronger for fans with high team identification compared to fans with low team identification, while the mediation (b) via fan-team personality match is stronger for fans with low team identification compared to fans with high team identification.

We also assess two key constructs from the Theory of Reasoned Action (TRA) that are among the most powerful determinants of sustainable behavior (McCullough & Cunningham, 2011, Scalco et al., 2017, Trail & McCullough, 2021): *attitude* (here: toward pro-environmental food consumption) and *subjective norm* (here: regarding pro-environmental food consumption). Attitude toward a certain concept is defined as “a person’s general feeling of favorableness or unfavorableness for that concept” (Ajzen & Fishbein, 1980, p. 54). Subjective norm is a person’s “perception that most people who are important to him think he should or should not perform the behavior in question” (Ajzen & Fishbein, 1980, p. 57). Subjective norm positively relates to recycling intentions of a sport team’s spectators (McCullough & Cunningham, 2011). Compared to the Theory of Planned Behavior, which includes perceived behavioral control as an additional construct, the TRA assumes that behaviors are under voluntary control by people. The latter can be assumed to be the case for food consumption. From early childhood on, people learn to have control over what they eat by developing food preferences (Birch & Fisher, 1998). Building upon the TRA and these findings, we hypothesize the following:

H8: There is a positive relationship between attitude toward pro-environmental food consumption and fans’ reported consumption of plant-based food.

H9: There is a positive relationship between subjective norm regarding pro-environmental food consumption and fans’ reported consumption of plant-based food.

Figure 1 summarizes the proposed relationships.

The present study

The study aims to assess downstream relations of fan awareness of a favorite sport team’s pro-environmental food initiatives on plant-based food consumption via team value internalization and fan-team personality match for highly (vs. lowly) identified fans. In doing so, we assume that fans can have different awareness levels of their favorite team’s pro-environmental initiatives. In our surveys, we limit our analysis to explicit awareness, that is, the awareness levels that people consciously report (Frith & Frith, 2008).

Study 1 aims to find out whether, how, and when, fan awareness of sport teams’ sustainable initiatives relates to plant-based food consumption, using a survey-based research design. Participants are fans from various teams who have reportedly promoted

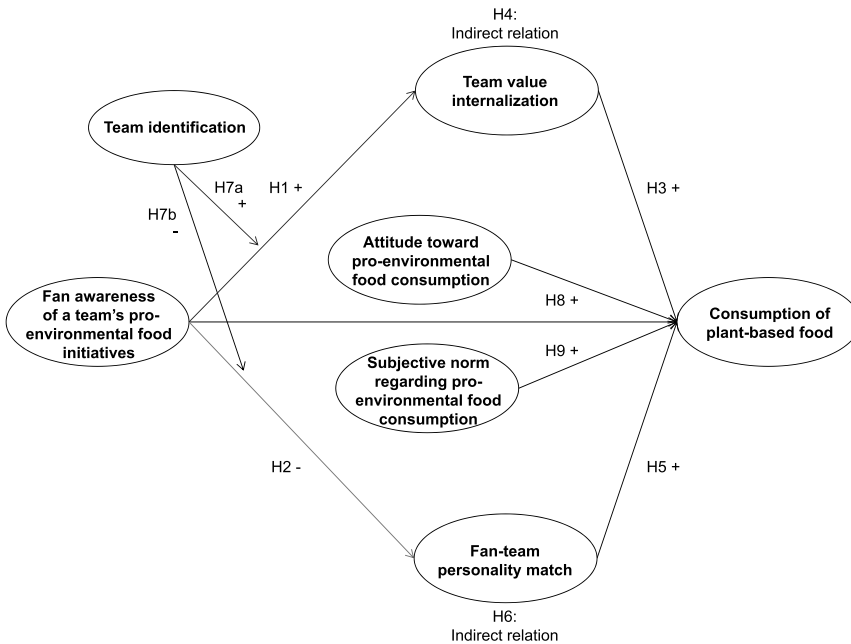


Figure 1. Model of how and when fan awareness of a sport team's pro-environmental food initiatives may relate to consumption of plant-based food. *Notes.* Paths indicate associations between variables (no cause-and-effect relationships).

plant-based food options toward fans in at least one initiative. Study 2 aims to replicate the results for one team, using a survey-experimental design. We note that, while the studies consider the order of how process evidence can be provided (assessing awareness first and food choices last), they consider only one point in time and no cause-and-effect relationships.

Study 1

Method

Design and procedure

A cross-sectional survey was distributed to fans of 12 different sport teams that had implemented plant-based food initiatives as part of their ongoing pro-environmental activities (Table 1). Team selection was based on an extensive online search (searching homepages of various sport teams and considering sustainability awards). Additionally, we asked 12 experts from five countries to state teams that they know of that provide sustainable food at events and implement initiatives that inform and educate their fans about the matter. All teams used a multi-channel strategy (online and offline, in-stadium and out-of-stadium) to promote and implement their initiatives.

All procedures were in accordance with the ethical standards of the university's Faculty Board, which acts as the local ethics committee for studies outside the Faculty of Medicine and approved the study, and with the 1964 Helsinki Declaration and its later amendments.

Table 1. Overview of teams and number of participants (study 1, $N = 799$ [100%]).

Teams	Sport, League, Country	Number of Participants (%)
Boston Red Sox	Baseball, MLB, U.S.	50 (6.3%)
Forest Green Rovers	Soccer, Football League One, Scotland	79 (9.9%)
Hibernian FC	Soccer, Scottish Premiership, Scotland	88 (11%)
Liverpool FC	Soccer, Premier League, England	69 (8.6%)
Montreal Canadiens	Ice hockey, NHL, Canada	50 (6.3%)
Portland Thorns FC and Timbers	Women's soccer, National Women's Soccer League; men's soccer, Major League Soccer, U.S.	87 (10.9%)
Portland Trailblazers	Basketball, NBA, U.S.	50 (6.3%)
Sacramento Kings	Basketball, NBA, U.S.	68 (8.5%)
San Francisco 49ers	Football, NFL, U.S.	59 (7.4%)
Southampton FC	Soccer, Premier League, England	63 (7.9%)
Tottenham Hotspurs	Soccer, Premier League, England	82 (10.3%)
VfL Wolfsburg	Soccer, Bundesliga, Germany	54 (6.8%)

Participants

799 fans of 12 sport teams served as participants for the study. They were recruited via online fan forums between May and August 2021. A raffle with three incentives was set up (€30 vouchers for local shops). The sample size met the recommended size of 162 participants to detect mediation of a small-to-medium effect size ($f^2 = 0.26$) for the paths from the independent variable to the two mediators (a paths) and a small-to-medium effect size ($f^2 = 0.26$) for the paths from the mediators to the outcome variable (b paths), specifying a power level of 0.80 (Fritz & MacKinnon, 2007).

Measures

Table 2 provides an overview of the items that were assessed in the survey (anchored at 1 [lowest rating] and 7 [highest rating]). The three-item scale for fan awareness of pro-environmental food initiatives (Cronbach's $\alpha = .79$) was taken from Walker and Kent (2013) and adapted to the context of the study. Internalization of team values was measured via four items used by Inoue and Kent (2012a; $\alpha = .84$). The scores for fan-team personality match ($\alpha = .74$) were obtained by separately measuring individuals' own personality and team personality characteristics (Kristof, 1996). The following characteristics were taken in reference to Stadler-Blank et al.'s (2018) personality scale: successful, determined, role model, caring for the environment, and health-promoting.¹ Difference scores were calculated as the level of congruence between the profiles (based on participants' evaluation of their own personality and team personality ratings). Attitude toward pro-environmental food consumption was measured on four semantic differentials and subjective norm was assessed via four items, both taken from Ajzen and Fishbein (1980; $\alpha = .89$ and $\alpha = .85$, respectively). Team identification was measured via the six-item scale taken from Inoue and Kent (2012a; $\alpha = .80$; see Mael & Ashforth, 1992, for the original scale). The measure of

¹A focus group with six fans revealed that these five items were most relevant. Based on these insights, the original scale was slightly adapted: "caring" was complemented with "for the environment" and "community-oriented" was replaced by "health-oriented" to consider the fans' sustainability and health expectations (which are often described as lifestyle of health and sustainability [LOHAS]).

Table 2. Overview of variables, means and standard deviations for study 1 and 2.

Variables	Items	Study 1		Study 2			
		Mean	SD	High Team Identification		Low Team Identification	
				Mean	SD	Mean	SD
Fan awareness of pro-environmental food initiatives	I am aware of the pro-environmental diet activities of [the team]	4.15	1.57	4.69	1.38	4.74	1.43
	It pleases me to know that [the team] promote pro-environmental diets						
	I know of [the team's] effort to promote pro-environmental diets						
Fan-team personality match ¹	To what extent do you perceive [the team, yourself] as ...	-0.22	1.37	-0.38	0.91	-0.04	0.96
	Successful						
	Determined						
	Role model						
Internalization of team values	Caring for the environment						
	Health-oriented						
	What [the team] stand for is important to me	4.61	1.42	5.06	1.12	4.82	1.13
	I find that my values and [the team's] values are very similar						
Attitude toward pro-environmental food consumption	The reason I prefer [the team] to others is because of what they stand for, their values						
	If the values of [the team] were different, I would not be as attached to them						
	How ... do you rate pro-environmental diets?	5.09	1.43	5.57	1.13	5.38	1.30
	Bad – good						
Subjective norm regarding pro-environmental food consumption	Harmful – beneficial						
	Unpleasant – pleasant						
	Unenjoyable – enjoyable						
	My friends think I should eat a pro-environmental diet	3.32	1.32	4.34	1.49	4.33	1.64
Team identification	My family thinks I should eat a pro-environmental diet						
	Other fans think I should eat a pro-environmental diet						
	[The team] I am a fan of thinks I should eat a pro-environmental diet						
	When someone praises the [the team], it feels like a personal compliment	4.42	1.30	4.91	1.22	4.86	1.25
Plant-based food consumption ²	[The team's] successes are my successes						
	When someone criticizes the [the team], it feels like a personal insult						
	When I talk about the [the team], I usually say "we" rather than "they"						
	If a story in the media criticized the [the team], I would feel embarrassed						
Plant-based food consumption ²	I am very interested in what others think about the [the team]						
	I ate vegan diets in the past two weeks	11.07	4.27	12.34	4.15	12.02	4.41
	I ate vegetables in the past two weeks						
	I avoided meat in the past two weeks						

SD: Standard deviation. ¹ Difference scores are reported; positive (negative) values indicate higher (lower) ratings for themselves compared to the team. ² Sum scores are reported.

plant-based food consumption relates to the adoption of a plant-based diet, using three dietary practices that resemble such food intake: eating vegetables, eating vegan foods, and avoiding meat, as identified by Povey et al. (2001) (a sum score was used).²

Data analysis

SPSS 29.0 was used to calculate means, standard deviations, and correlations. The validity and reliability of the latent variables were assessed via Mplus 7.31. The software was also used to test the hypothesized relationships of the moderated serial mediation model via a path analysis (Muthén et al., 2017).

The model includes fan awareness of pro-environmental food initiatives as the independent variable, team value internalization and fan-team personality match as parallel mediators, team identification as a moderator of the independent variable-mediator paths, and plant-based food consumption as the dependent variable. Additionally, attitude and subjective norms are modeled as predictors of the dependent variable. All direct and indirect paths are included in the model. The approach allows to test for both independent variable-mediator paths (a paths), the mediator-dependent variable paths (b paths), for the indirect relation between fan awareness and plant-based food consumption via both mediators, as well as for moderation of team identification on both a paths. To describe interactions, conditional relations were examined at low (mean – 1 SD), medium (mean), and high (mean +1 SD) levels of the moderator. Also, 95% bias-corrected confidence intervals (CIs) were used for significance testing purposes of the mediation (significance is given if zero is not included in the CIs).

Results and discussion

Table 3 provides an overview of the sample. Table 4 shows the correlations between the variables. Table 5 and Figure 2 report the results of the modeling. The model explains 30.4% of the variance in team value internalization, 10.1% of the variance in fan-team personality match, and 32.0% of the variance in plant-based food consumption. In support of H1, the relationship between fan awareness and team value internalization is positive ($\beta = .24$, $SE = .03$, $p < .001$). As postulated in H2, the relationship between fan awareness and fan-team personality match is negative ($\beta = -.36$, $SE = .05$, $p < .001$).

Fan-team personality match (but not internalization, $p = .37$; see Table 5) relates positively with consumption of plant-based food ($\beta = .31$, $SE = .08$, $p < .001$). Thus, H3 is not supported, but H5 is supported. Attitude ($\beta = 0.26$, $SE = .09$, $p = .005$) and subjective norm ($\beta = 1.29$, $SE = .10$, $p = .005$), as expected in H8 and H9, relate positively to plant-based food consumption.

In support of H6 (but not H4), fan-team personality match (but not internalization; $p = .38$, CI 95% [–.020; .074]) mediates the relation between fan awareness and plant-based food consumption at medium levels of team identification ($\beta = -.11$, $SE = .03$, $p < .001$, CI

²The present study considers reported food consumption. Please note that the three consumption practices are not fully representative of sustainable food consumption. Yet, the three practices are diet-related habits that were mentioned to be most relevant to reduce the harm on the environment from the concession-stand managers' point of view, as revealed in eight semi-structured interviews with managers and vendors who run concession stands at professional football, soccer, basketball, and ice hockey games.

Table 3. Sample characteristics for participants of study 1 and 2.

Characteristics	Study 1	Study 2
Gender (male, %)	83.0	58.7
Age (18–24 years, %)	8.3	3.1
(25–34 years, %)	20.8	29.2
(35–44 years, %)	23.0	29.8
(45–54 years, %)	20.5	21.3
(55–64 years, %)	16.8	12.1
(65–74 years, %)	9.6	3.9
(75 years or more, %)	1.0	0.6
Education (Primary school, %)	2.1	2.0
(Secondary school, %)	14.1	12.1
(A-Level/IB, %)	23.9	5.1
(Bachelor/master's degree, %)	54.4	78.4
(Doctorate, %)	5.3	2.5
Personal yearly gross income (Less than \$10,000, %)	8.4	0.8
(\$10,000–\$29,999, %)	18.0	14.9
(\$30,000–\$49,999, %)	22.6	23.9
(\$50,000–\$69,999, %)	13.6	17.9
(\$70,000–\$89,999, %)	10.6	20.7
(\$90,000 or more, %)	23.0	21.6
Household Size	<i>M</i> = 2.8 (<i>SD</i> = 1.3)	<i>M</i> = 3.2 (<i>SD</i> = 1.5)
(1, %)	12.0	14.2
(2, %)	39.2	24.8
(3, %)	18.6	14.5
(4, %)	1.8	28.5
(5 or more, %)	7.6	17.9
Dietary preferences (Omnivore, %)	75.0	56.5
(Mainly vegetarian, %)	14.4	27.8
(Mainly vegan, %)	5.3	15.2
Home games visited in the past three years	<i>M</i> = 20.6 (<i>SD</i> = 19.7)	<i>M</i> = 10.6 (<i>SD</i> = 21.7)
Duration of support of favorite team (years)	<i>M</i> = 26.6 (<i>SD</i> = 16.3)	<i>M</i> = 18.4 (<i>SD</i> = 15.2)
Main reason for becoming a fan (Multiple answers possible, %)		
(Family and friends, %)	40.6	62.1
(Team values, %)	22.7	23.6
(Success of the team, %)	13.3	37.1
(Specific player, %)	14.6	18.8
(Game-day experience, %)	20.0	15.8
Intention to change dietary preferences in the future		
(I actively try to consume a more pro-environmental diet, %)	46.7	37.6
(I never thought about changing toward a more pro-environmental diet, %)	43.8	50.0
(I do not try to consume a more pro-environmental diet, %)	9.5	12.4

M: Mean; *SD*: standard deviation.

95% [−0.181; −0.056]). Next, we consider the indirect relations via fan-team personality match at high and low levels of team identification. As postulated in H7b, the conditional indirect relation is weaker at high, $\beta = -.08$, $SE = .03$, $p = .01$, $CI [-.151; -.029]$, compared to low levels of team identification, $\beta = -.15$, $SE = .05$, $p = .002$, $CI [-.259; -.069]$. The index of moderated mediation is .03 ($CI [-.003; .090]$) for fan-team personality match.

In contrast to Inoue and Kent (2012a), we find no evidence for mediation via team value internalization, most likely because explained variance is picked up by fan-team personality match. The latter (but not the former) variable functions a mediator that not only explains plant-based food consumption among fans, but also differs regarding its mediation between highly and lowly identified fans. As in Inoue and Kent's (2012a) study, team identification has no association with the mediation via internalization. However, one novel finding of the present research are the differences in mediating relations between highly and lowly identified fans via fan-team personality match.

Table 4. Overview of the correlation between the variables.

Factors	1	2	3	4	5	6	7	8
1 Fan awareness of pro-environmental food initiatives	.81 / .80	.02	.56***	.02	.06	.45***	.62***	.49***
2 Fan-team personality match	-.29***	.62 / .56	.01	-.18***	.001	.18***	.19***	.25**
3 Internalization of team values	.40***	-.28***	.76 / .73	.11*	-.08	.42***	.52***	.44***
4 Team identification	.21***	-.14*	.36***	.65 / .73	.01	.08	.02	.04
5 Team mission (study 2 only)	/	/	/	/	/	-.05	.003	-.03
6 Attitude toward pro-environmental food consumption	.32***	-.05	.32***	.06	/	.81 / .80	.56***	.48***
7 Subjective norm regarding pro-environmental food consumption	.31***	-.07	.34***	.16***	/	.41***	.77 / .86	.66***
8 Plant-based food consumption	.23***	.07*	.21***	-.05	/	.54***	.31***	.71 / .70

Square roots of average variance extracted (AVE) are shown on the diagonal (values in bold, for study 1 / 2); values below (above) the diagonal represent the correlations between the constructs for study 1 (2); * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed). The square root of the AVE is greater for each construct than the correlations with the other constructs (Fornell & Larcker, 1981). Validity concerns exist for team identification (study 1) and fan-team personality match (AVE < .5; Fornell & Larcker, 1981). The composite reliability was higher than .7 for all factors (Hair et al., 2010).



Table 5. Results on how and when fan awareness of the favorite team's pro-environmental food initiatives relates to the consumption of plant-based food.

	Study 1			Study 2			Hypotheses Supported?
	β	SE	p	β	SE	p	
Direct relations on mediators							
Fan awareness → Team value internalization	.24	.03	<.001	.30	.09	.001	H1: Yes
Team identification → Team value internalization	.33	.04	<.001	.15	.07	.02	
Fan awareness × Team identification → Team value internalization	-.06	.04	.16	.09	.09	.33	
Attitude → Team value internalization	.15	.03	<.001	.10	.08	.20	
Subjective norm → Team value internalization	.16	.03	<.001	.20	.06	.003	
Team mission → Team value internalization	/	/	/	-.16	.07	.02	
Fan awareness → Fan-team personality match	-.36	.05	<.001	-.33	.09	<.001	H2: Yes
Team identification → Fan-team personality match	-.12	.05	.02	-.38	.10	<.001	
Fan awareness × Team identification → Fan-team personality match	.11	.06	.09	.27	.14	.05	
Attitude → Fan-team personality match	.03	.05	.49	.19	.09	.03	
Subjective norm → Fan-team personality match	.05	.05	.34	.23	.08	.003	
Team mission → Fan-team personality match	/	/	/	.05	.10	.65	
Direct relations on plant-based food consumption							
Fan awareness → Plant-based food consumption	.20	.10	.05	.24	.15	.11	H3: No
Team value internalization → Plant-based food consumption	.09	.10	.37	.26	.16	.09	H5: Yes
Fan-team personality match → Plant-based food consumption	.31	.08	<.001	.29	.10	.003	H8: Yes
Attitude → Plant-based food consumption	.26	.09	.005	.29	.14	.04	H9: Yes
Subjective norm → Plant-based food consumption	1.29	.10	<.001	1.10	.13	<.001	
Team mission → Plant-based food consumption	/	/	/	-.09	.17	.61	
Moderation of team identification on indirect relations							
<i>Conditional indirect relation via internalization</i>							
Low	.03		[-.025; .101]	.08		[.001; .210]	H7a: Partly (study 2 only)
Medium	.02		[-.020; .074]	/		/	H4: No for study 1
High	.02		[-.013; .063]	.10		[-.005; .238]	H7a: No
<i>Conditional indirect relation via fan-team personality match</i>							
Low	-.15		[-.259; -.069]	-.10		[-.220; -.030]	H7b: Yes
Medium	-.11		[-.181; -.056]	/		/	H6: Yes for study 1
High	-.08		[-.151; -.029]	-.02		[-.102; .042]	H7b: Yes
Total relations							
<i>Fan awareness → Team value Internalization → Plant-based food consumption</i>							
Low	.23		[.018; .420]	.32		[.015; .589]	
Medium	.22		[.006; .404]	/		/	
High	.22		[.001; .396]	.35		[.054; .613]	
<i>Fan awareness → Fan-team personality match → Plant-based food consumption</i>							
Low	.06		[-.145; .241]	.15		[-.175; .467]	
Medium	.09		[-.108; .275]	/		/	
High	.12		[-.089; .322]	.23		[-.090; .539]	

Notes. β : unstandardized path coefficient; SE: standard error; p: significance; CI: Confidence interval.

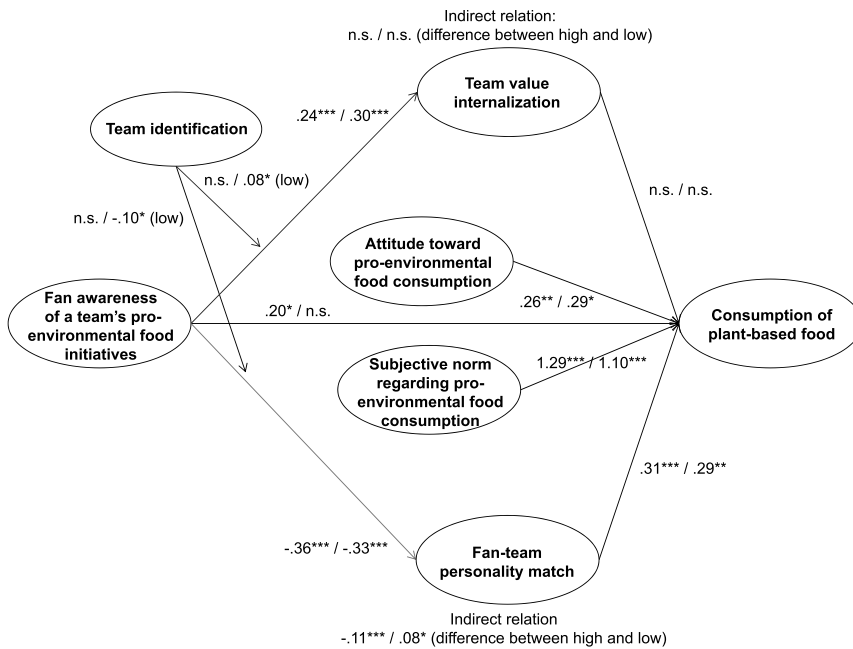


Figure 2. Model testing results for study 1 and study 2. *Notes.* Paths indicate associations between variables (no cause-and-effect relationships); * $p < .05$, ** $p < .01$, *** $p < .001$; results for study 1 (2) are shown to the left (right) of the slash.

To test the robustness of the finding, we conducted another study, in which we do not measure, but manipulate team identification. In addition, we are interested in finding out whether the negative relation for lowly identified fans via fan-team personality match will disappear when fans are reminded of the favorite team's mission to contribute to sustainable development.

Study 2

Method

Design and procedure

A survey was distributed to fans of the Boston Red Sox. The team was chosen because of the team's mission to sustainable development, and their plant-based food initiatives as part of their ongoing pro-environmental activities. A 2 (team identification: low vs. high) \times 2 (mission statement: core = sustainable development vs. core = sport participation) survey-experimental design was applied. Participants were randomly assigned to one of the four experimental conditions.

Participants first read about the team's mission (either centered on sustainable development or sport participation). The instructions were as follows:

You just indicated that you are a fan of the Boston Red Sox. Please read the mission of the team, as described in this exemplary quote: "Our mission is to make a difference by improving our fans' health, education, and recreational opportunities. Most importantly, we teach fans and younger folks about the importance of sustainability and healthy living. Fenway Park is a tool for that education, particularly to promote sustainable food consumption (quoting a high-level Fenway's manager)", or

“Our mission is to make a difference by being an aspired baseball team. Most importantly, we teach fans and younger folks about the importance of sport and active living. Fenway Park is a tool for that education, particularly to promote sport participation (quoting a high-level Red Sox manager).”³

Next, they were instructed to either state events that make them feel very close to the team and indicates their identification with the team (high team identification) or state events that make them feel far away from the team and questions their identification with the team (low identification). Open-ended responses were inductively coded and the number of high-identification minus low-identification codes was used to assess whether the manipulation worked or not. Afterwards, participants completed the same survey as in study 1.

Participants

The same sample size requirements as for study 1 were applied. 356 participants took part in the study, recruited via Amazon’s Mechanical Turk. They received a small compensation of US-\$1.75. The data collection took place in August 2022.

Measures

The same measures were used as in study 1. Cronbach’s alpha is .82 for awareness, .81 for internalization, .70 for fan-team personality match, .89 for attitude, and .91 for subjective norm.

Data analysis

We used the same procedures for the statistical analyses as in study 1 except for the addition of the mission statement manipulation (coded = 0 for sport participation and = 1 for sustainable development).

Results and discussion

To assess whether the manipulation of team identification worked, we considered the means of the difference score in identification codes (high minus low) for high- and low-identification fans. The results reveal that the manipulation is successful ($M_{\text{High identification}} = 1.43$, $SD = 1.01$ vs. $M_{\text{Low identification}} = -.79$, $SD = .99$; $t(354) = -20.87$, $p < .001$). To assess whether the manipulation of the team’s mission worked, we considered differences in means for perceived focus on sustainability ($M_{\text{Sustainable development}} = 5.50$, $SD = 1.16$ vs. $M_{\text{Sport participation}} = 5.35$, $SD = 1.32$; $t(354) = 2.16$, $p = .02$) and perceived focus on sport participation ($M_{\text{Sustainable development}} = 4.75$, $SD = 1.59$ vs. $M_{\text{Sport participation}} = 5.75$, $SD = 1.00$; $t(354) = -3.85$, $p < .001$). The manipulation is successful.

The path model explains 39.2% of the variance in internalization, 11.1% of the variance in fan-team personality match, and 48.1% of the variance in plant-based food consumption. The relations between fan awareness and internalization ($\beta = .30$, $SE = .09$, $p = .001$) and fan-team personality match ($\beta = -.33$, $SE = .09$, $p = .001$), respectively, are significant and in the expected directions, supporting H1 and H2.

³To assess whether the manipulation worked or not, the following items were used (three items each): The Boston Red Sox’ mission is to promote... sustainability, healthy eating, healthy lives (core = sustainable development); sport participation, physical activity, active lives (core = sport participation). Items were assessed on a seven-point scale (1 = Not at all, 7 = Very much).

The relation between internalization and plant-based food consumption is non-significant ($\beta = .26$, $SE = .15$, $p = .09$; not supporting H3). Fan-team personality match is positively associated with the consumption of plant-based food ($\beta = .29$, $SE = .10$, $p = .003$), supporting H5. Reminding fans of the team's mission to sustainable development does not relate significantly to plant-based food consumption ($p = .61$; see Table 5). Attitude ($\beta = 0.29$, $SE = .14$, $p = .04$) and subjective norm ($\beta = 1.10$, $SE = .13$, $p < .001$), as expected in H8 and H9, relate positively to plant-based food consumption.

There is no mediation via team value internalization (CI [.001; .210], $p = .11$, and CI [-.005; .238], $p = .10$, respectively). The results do not support H7a. In support of H7b, fan-team personality match mediates the relation between fan awareness and plant-based food consumption at low ($\beta = -.10$, $SE = .05$, $p = .04$, CI [-.220; -.030]), but not at high levels of team identification ($p = .63$, CI [-.102; .042]). The index of moderated mediation was .08 (CI [.006; .223]).

General discussion

The study's purpose was to find out whether, when, and how fan awareness of pro-environmental food initiatives of teams is associated with plant-based food consumption. The study contributes to existing research in sport management. First, our work provides novel insights into the role of *team value internalization*. Study 1 and 2 indicate that there are positive total relations with plant-based food consumption, that is, value internalization is positively related to the consumption of plant-based diets. Still, the variable does not function as a mediator of the relationship between fan awareness and plant-based food consumption and does not explain differences in responses between lowly and highly identified fans (the latter was also observed by Inoue and Kent, 2012a). Value internalization likely requires deeper engagement than the mere awareness of pro-environmental initiatives (e.g., Pape et al., 2023).

Second, the study is the first to describe the role of *fan-team personality match* in the context of sustainable consumption behaviors. Interestingly, the total relations are non-significant in both studies. There are even adverse relations between fan awareness of pro-environmental initiatives and plant-based food consumption for lowly identified fans. Ironically, the perception of the team's personality as superior to their own personality among low-identification fans is negatively related to the consumption of plant-based diets despite high awareness levels. Thus, the communication of the team's sustainability effort may run dry when lowly identified fans feel that the team's personality is "better" than their own personality in terms of relevant attributes. Highly identified fans are less prone to perceive such differences, which have downstream relations on plant-based food consumption. Thus, the trickle-down mechanism of sport teams' sustainability initiatives on pro-environmental behavioral intentions of fans found in previous studies (Casper et al., 2014, Inoue & Kent, 2012a, Trail & McCullough, 2021) may not apply to the promotion of plant-based food consumption toward lowly identified fans. One explanation might be that they are more interested in peripheral service features, such as concessions, compared to highly identified fans, who may be more interested in the core of the service experience (i.e., following the game itself and supporting the team at their best efforts; Ma & Kaplanidou, 2020). This relationship

on lowly identified fans does not disappear when they are reminded of the team's mission statement, that is, an indicator that mere communication is not enough to avoid a negative indirect backlash on the consumption of plant-based food. In reference to Casper et al.'s (2017) identification of a lowly identified but highly pro-environmental target group for an athletic department of an U.S. college, we can state that the pure focus on lowly identified fans to promote sustainable behaviors is not warranted, based on our study's findings.

Third, the study provides new insights into the applicability of the Awareness-to-Action Continuum to the promotion of pro-environmental food (Barnes, 2013). Team-initiated information provision about plant-based food may have positive downstream relations on consumption of such foods. While the present study reveals adverse associations via fan-team personality match for lowly identified fans, the positive direct associations with attitude toward pro-environmental food consumption, subjective norm, and team value internalization indicate that there are various positive associations with plant-based food consumption across fans of different identification levels. Values and attitudes are part of the Sport Sustainability Campaign Evaluation Model (Trail & McCullough, 2021) and Casper et al.'s (2014) modified Value Beliefs Norms Theory, to name but two examples of complementary theoretical bases.

Managers of sport teams can be recommended to engage fans regarding the promotion of plant-based foods, and particularly shape attitudes, subjective norms, personalities, and values (related both to the team and the fans; see also Trail & McCullough, 2021). Lea et al. (2006) identified various barriers to the consumption of plant-based diets; the need for more information about plant-based foods was the barrier that was ranked highest by participants. Plant-based food initiatives by sport teams might inform fans about the advantages of plant-based foods and reduce potential barriers. Yet, the communication should consider that lowly identified fans might feel distant from the team, in the sense that they perceive the team's personality as superior, when these fans become aware of the team's food activities. To avoid such situations, managers should engage the fans at eye level and highlight the similarities in personalities in combination with the articulation of the benefits of adopting plant-based diets.

Limitations and future research

First, we did not investigate actual behavior. Future research may conduct real-life observations of food choices in stadiums to increase external validity. Second, we did not assess multiple stages of the fan decision-making process in our study, and we did not establish causality of the full model. Future studies may test the Awareness-to-Action Continuum using a longitudinal design and testing the directionality of the full model. One question regarding our study is whether reverse causality is at play, because fans' existing eating patterns might influence whether they become aware of a team's pro-environmental food offers. To test the directionality of the model, future research might design a study, in which one team provides pro-environmental foods on-site for the first time (but another team that has a comparable fan base does not provide such foods; control group) and survey their fans over time (i.e., before and after the provision), including both vegan or vegetarian fans and fans who are neither

vegan nor vegetarian before the intervention. Then, changes over time can be observed and attributed to the provision of pro-environmental foods by the team. Third, we did not assess environmental literacy-related variables in the model. Future studies might include such measures to test Barnes' (2013) model holistically. Fourth, the scales that we used can be criticized. Fan awareness could have been measured as a binary variable (yes vs. no) in relation to concrete pro-environmental activities, or could have been measured using both implicit and explicit tools. The measurement of internalization did not allow us to assess what values were considered by fans and whether environmental values are part of the value system. For fan-team personality match, participants could score high on a performance-related measure and low on a sustainability-related measure (and vice versa), affecting the overall scores that were used in the path model. Also, the items that were used to indicate the levels of plant-based food consumption may provide a myopic view on what sustainable food consumption is. For example, while eating vegan food might be more sustainable than eating non-vegan food, the food can still be flown in for consumption (leaving a relatively high carbon footprint for transport). Fifth, using MTurk workers may have biased the results, for several reasons (e.g., extrinsic motivation for participation, lack of representativeness, tendency to fast responding, and lack of attention). Sixth, our study does not answer the question of whether the provision of plant-based food options is perceived as a threat (e.g., because eating rituals are contested). Future research may add relevant variables to the model. Lastly, while the present study is limited to the adoption of plant-based foods, the model – and possible extensions – might be applicable to other domains of sustainable consumption.

Highlights

- The study examines the relation between fan awareness of sustainable food initiatives by teams and reported plant-based food consumption
- Two empirical studies assess the mediating relation of team value internalization and fan-team personality match
- Team identification associates with the relation between awareness and food consumption via personality match (but not internalization)
- For low-identification fans, increasing personality differences have a negative indirect relation with food consumption

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Declaration of conflicting interests

There are no conflicts of interest.

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Appendix

Table A1. Overview of empirical studies on sustainable fan behavior or behavioral intentions as outcome variables

Reference	Theoretical Perspectives	Outcomes	Antecedents	Mediators Examined	Moderators Examined	Research Context	Correlational Evidence	Experimental Evidence	Main Results
McCullough and Cunningham (2011)	Theory of Planned Behavior	Intentions to recycle	Attitude, subjective norm, perceived behavioral control, specific beliefs			Attendees of youth baseball tournament (n= 129)	Yes	No	Subjective norm, but not attitude and behavioral control, as well as time and sensing pressure from other families as beliefs explain 30% of the variance in intentions
Inoue and Kent (2012a)	Social Influence Theory	Intentions to engage in daily pro-environmental behavior	Environmental practices, athlete involvement in internalization practices, internalization	Internalization	Team identification	Student fans of a major-league team (n = 197)	No	Yes, survey-experiment	Internalization is a mediator; for team identification, no moderation was found. The final model explains 9% of the variance in intentions
Inoue and Kent (2012a)	Social marketing	Daily recycling behavior; intentions to recycle in-game	Perceived CSR, general credibility, fit, effort, impact	Environmental credibility	Issue importance	Philadelphia Eagles or Phillies fans (n = 321)	Yes	No	Environmental credibility relates positively to both outcomes; all variables except fit relate to environmental credibility. No R ² values are reported by the authors for the full model. Environmental credibility has a weaker association with in-game recycling for fans who perceive high issue importance
Casper et al. (2014)	Value-Belief-Norm Theory	Intentions at the sport event and in daily life regarding recycling, waste diversion, and transportation	Environmental values, ascription of responsibility for sport organizations, personal norms	Ascription of responsibility, personal norms		Attendees of a college-football green game (n = 2,700)	Yes	No	Environmental values, ascription of responsibility, and personal norms explain 62% of the variance in intentions at the sport event and in daily life

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Reference	Theoretical Perspectives	Outcomes	Antecedents	Mediators Examined	Moderators Examined	Research Context	Correlational Evidence	Experimental Evidence	Main Results
Martin et al. (2015)	Community-based social marketing	Intentions and behavior regarding recycling	Informed intervention: workshop about recycling and rewards (stickers and shirts)			Tailgaters at college football events (<i>n</i> = 392)	No	Yes	The intervention increased reported recycling behavior (medium effect size compared to the control group; large effect size compared to baseline measurement in the experimental group).
Trail and McCullough (2018)	Internal and external constraints	Intentions regarding waste diversion	Lack of knowledge, lack of worth, lack interest from others, lack of time/access			Community run participants (<i>n</i> = 531)	Yes	No	Internal and external constraints explain 31% of the variance in intentions; differences in relationships between six clusters are identified
Trail and McCullough (2020)	Sport Sustainability Campaign Evaluation Model	Intentions regarding recycling, waste diversion, and buying carbon offsets	Needs, values, internal constraints, points of attachment, attitude, external constraints, past sustainable behaviors	Values, attitude		Community run participants (<i>n</i> = 531)	Yes	No	Attitude, external constraints, past behavior, and indirect relations explain 74% of the variance in intentions
Trail and McCullough (2021)	Sport Sustainability Campaign Evaluation Model (extension)	Waste diversion, transportation, energy conservation, and water conservation behavior	Needs, values, lack of knowledge, pre-attitude, pre-intention, lack of information	Values, pre-attitude, pre-intention		Caregivers of intellectually disabled athletes who attended the Paralympics (<i>n</i> = 182)	Yes	No	Intentions, constraints, and indirect relations predict 39% of the variance in reported behaviors during the event, which are related to satisfaction with both event organizers' communication and sustainability initiatives

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(Continued).

Reference	Theoretical Perspectives	Outcomes	Antecedents	Mediators Examined	Moderators Examined	Research Context	Correlational Evidence	Experimental Evidence	Main Results
Pape et al. (2023)	Internalization of values	Intention to eat a plant-based diet	Past dietary change toward vegan or vegetarian, value internalization, environmental personal norms	Value internalization		Fans of Forest Green Rovers (n = 107)	Yes	No	Internalization is a mediator. Environmental personal norms are not related to intentions. The model explains 40.7% of the variance in intentions
Present study	Awareness-to-Action Continuum	Plant-based food consumption	Awareness, fan-team personality match, team value internalization, attitude, subjective norm	Fan-team personality match, team value internalization	Team identification	Fans of 12 teams engaged in sustainable food initiatives (study 1, n = 799); Boston Red Sox fans (study 2, n = 356)	Yes (study 1)	Yes (study 2), survey-experiment	The predictors explain 32.0 and 48.1%, respectively, of plant-based food consumption. Fan-team personality match (but not value internalization) is a mediator, depending on the levels of team identification. The more the low-identification fans perceive the team's personality as superior to their own personality, the less likely they adopt a plant-based diet despite high awareness levels

Essay 3

Reasons for and against the Provision of Plant-Based Diets at Sport Venues: The Perspective of Catering Managers of German Bundesliga Teams

Lennart Pape^a and Joerg Koenigstorfer^a

Abstract

Research question: Based on the tenets of behavioral reasoning theory, the study aims to explore reasons for and against the provision of plant-based diets at sport venues by investigating managers' perspectives.

Research methods: Expert interviews with 13 managers of German Bundesliga teams and catering companies were conducted. An inductive thematic analysis was applied to extract reasons for and against providing plant-based diets.

Results and findings: The findings reveal the following reasons for providing plant-based diets: increasing demand; pursuing an authentic sustainability mission; attracting and collaborating with new partners; incentivizing food trials; as well as reducing environmental impact and promoting health. Reasons against were the following: overall low demand for plant-based diets; focus on sporting success; high efforts to provide plant-based diets; inappropriate infrastructure to offer plant-based diets on a broader scale; and the lack of an appropriate supply chain for providing plant-based diets.

Implications: Future studies can build upon these findings to showcase how facilitators (here: reasons for) can be implemented within strategic and operational management actions. Future studies can also be designed to identify how barriers (here: reasons against) can be reduced to promote sustainable food consumption among fans.

Key words: Sustainable consumption; environmental sustainability; sustainable food behaviors; sustainable food promotion; stadium food offerings

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Introduction

Consuming less animal products and more plant-based food options is considered important in combating climate change and reducing an individual's carbon footprint, while simultaneously promoting health (Graça et al., 2019; Meyer & Reguant-Closa, 2017; World Health Organization, 2021). The production of meat, eggs, and dairy products has the highest share of dietary emissions in the European Union (accounting for more than 80% on average; Sandstroem et al., 2018), highlighting the positive contribution a reduction in animal product consumption can have on the environment. In the past years, a shift toward more plant-based diets can be observed. For example, from 2017 to 2022, the number of vegetarians and vegans increased by around three million people in Germany. Still, the number of people who consume vegetarian or vegan diets is relatively low. In 2022, around 9.4% (2.0%) of the German population ate plant-based (vegan) diets (Allensbach, 2022a, 2022b).

In line with this change, an enhanced promotion of plant-based diets can be witnessed in the sport sector. As mega sport events and sport teams reach out to a large audience, they can take over responsibility and engage fans in pro-environmental activities to increase fans' behavioral intentions to act sustainably (Babiak & Trendafilova, 2011; Babiak & Wolfe, 2009; Trail & McCullough, 2021). For example, German Bundesliga games were visited in the 2022/23 season by 42,992 fans on average, and in total, welcomed 13,155,678 fans (transfermarkt.de, 2023). However, spectators often associate visiting soccer games with the consumption of unhealthy fast-food and often not too tasty but expensive foods and beverages (Ireland & Watkins, 2010; Koenigstorfer, 2018; Parry et al., 2019; Parry et al., 2017; Parry & Richards, 2022).

To counter this, several professional sport teams started implementing plant-based and pro-environmental food activities. A salient example are Forest Green Rovers that serve vegan food only at their sport venue (Forest Green Rovers, 2022). Further examples in the

professional sport sector are described by Henly and Krenza (2015). In Germany, first- and second-division Bundesliga teams are required to implement pro-environmental strategies, including food management, within their licensing procedure (DFL, 2022b). One important aspect in implementing plant-based diets is the education of spectators about healthy food options and a healthier lifestyle (Parry et al., 2019; Parry et al., 2017). Also, mega sport event managers often focus on the provision and promotion of more plant-based and sustainable diets (Paris 2024, 2023; UEFA, 2023). Therefore, sport venues can be seen as a place to give fans a better understanding of the benefits of plant-based food options and allow them to try out such diets (Henly & Krenza, 2015; Parry et al., 2019).

In line with the current societal shift toward plant-based food consumption, there may be various advantages to market plant-based offerings for sport teams in the future and influence sport fans' food behaviors. Yet, this will be a long-term process. For example, childhood experiences with unhealthy food products at sport events were found to influence unhealthy future food consumption behaviors at sport games (Koenigstorfer, 2018), highlighting the potential impact that food offerings at sport venues can have on fans' food behaviors in the long term. Moreover, people often have certain eating routines (Pohjolainen et al., 2015). Implementing plant-based diets may help change fan routines, especially among young fans. While several sport teams started to promote plant-based diets at sport venues (for examples, see Henly & Krenza, 2015; Parry et al., 2019), there remain questions about the specific reasons for and against the provision of plant-based diets at sport venues from catering managers' perspectives. Thus, the following research questions (RQs) guided the present study:

RQ1: What are managers' reasons for providing plant-based diets at sport venues?

RQ2: What are managers' reasons against providing plant-based diets at sport venues?

The present study contributes to the sport management literature in the following ways. First, by exploring facilitators and barriers of plant-based diet provision, a better understanding of the decision-making process of managers responsible for public catering at sport venues can be achieved. Second, knowledge about the specific reasons for and against providing plant-based diets will help sport practitioners overcome barriers to expanding their current offer and outline benefits that go along with providing plant-based diets. Most authors that investigated facilitators and barriers of plant-based diet consumption focus on a customer perspective and mainly applied quantitative methods (for examples, see Lea et al., 2006; Pohjolainen et al., 2015; Varela et al., 2022). They do not consider the sport venue setting. Also, there is a lack of knowledge on reasons for and against the provision of plant-based diets from the perspective of catering managers.

Literature Review

Benefits of plant-based diets

A reduction in meat and an increase in plant-based diet consumption have positive effects on the environment by lowering individual's greenhouse gas emissions while simultaneously enhancing personal health (Meyer & Reguant-Closa, 2017; Reisch et al., 2013; Segovia-Siapco & Sabaté, 2019). Plant-based diets are defined by the World Health Organization (2021) as diets that “constitute a diverse range of dietary patterns that emphasize foods derived from plant sources coupled with lower consumption or exclusion of animal products” (p. 1), stressing changes in dietary patterns toward vegetable and non-animal products.

Reasons for the consumption and provision of plant-based diets

Individual adoption factors for plant-based diets are often linked to health benefits, a reduced environmental impact, and animal welfare (Lea et al., 2006; Varela et al., 2022). An increase in information about the benefits of, and education about, preparing plant-based diets is further associated with the adoption of such diets, as well as familiarity and repetitive consumption (Graça et al., 2019; Varela et al., 2022). Regarding organic food purchases, health, low environmental impact, and animal welfare are considered reasons for adopting such behaviors (Tandon et al., 2020).

In the sport context, implementing and promoting plant-based food initiatives by teams could help change fans' food behaviors by allowing them to try out such options and form new eating habits, which can be considered especially important for children (Koenigstorfer, 2018). Positioning a sport team around the topic of plant-based diets can help differentiate from other sport teams, generate new sponsors and partners, and influence fans' food choices (Cornwell & Koenigstorfer, 2017; Stadler Blank et al., 2017). The implementation of plant-based diets can further establish sustainable team values in the perception of stakeholders, which could influence fans' eating behaviors if they internalize these values in their own value system (Pape et al., 2023). In addition, sport venue managers can be agents of change; sport teams are often seen to have a responsibility to encourage sustainable behaviors (Parry et al., 2019; Parry & Richards, 2022). Furthermore, there is an increase in demand for plant-based food in recent years as more women and children attend games, compared to a previously typically male dominated game attendance (Ireland & Watkins, 2010; Lagaert & Roose, 2018; Parry et al., 2017).

Reasons against the consumption and provision of plant-based diets

Past research concentrated on personal grounds for refusal of plant-based diets (for example, see Lea et al., 2006; Pohjolainen et al., 2015). A lack of information, high prices of non-meat products, and difficulty in preparing plant-based diets were considered common barriers (Graça et al., 2019; Varela et al., 2022). Lea et al. (2006) identified eating habits, available food options, and lower tastiness of consuming non-meat products as barriers to consuming plant-based diets. Meat enjoyment and familiarity with specific meat-based options but also the importance of meat consumption in societies and norms to eat meat with family and friends were further found as barriers toward plant-based alternatives (Graça et al., 2019; Pohjolainen et al., 2015; Varela et al., 2022).

These barriers may also be prevalent to refrain sport teams from providing plant-based diets at their venues as catering managers might perceive that fans will not consume plant-based alternatives. The offering of traditional meat-based food options can be linked to fans' preferences and habits in eating such offerings (Ireland & Watkins, 2010; Koenigstorfer, 2018). These food options are often meat-based fast-food, which is prepared quickly and has lower costs (Parry & Richards, 2022). Fan routines and traditions at sport venues are at play, too (Parry et al., 2019), which might influence managers' perspectives. Managers may also perceive that the effort to provide these plant-based diets in a high quality is too high due to difficulties and complexities in preparation. Moreover, sport teams often have contracts with food and beverage sponsors that only allow them to provide certain products (Cornwell & Koenigstorfer, 2017), which limit the possibility of providing alternatives. Lastly, capacity constraints in concession stands may be a factor that may make managers more or less open toward the provision of plant-based foods.

Conceptual Background

Westaby's (2005) Behavioral Reasoning Theory (BRT) provides a conceptual framework to investigate why people behave in a certain way. The theory outlines the relevance of the connection between reasons, beliefs, values, global motives (attitude, subjective norm, and perceived behavior control; see Ajzen, 1991), intentions, and behaviors. According to BRT, an individual's beliefs and values influence the reasons for or against a certain matter. Reasons, in turn, influence global motives and behavioral intentions. Favorable factors, that is, reasons for why people may engage in a behavior, and unfavorable factors, that is, reasons for why people may resist a behavior, are key to BRT (Tandon et al., 2020; Westaby, 2005). The assessment of both perspectives helps gain a better understanding of decisions (Westaby, 2005; Westaby et al., 2010).

Reasons for and against are not opposites but are distinct factors that have a differential influence on behavioral decisions (Claudy et al., 2015). Reasons support decision-making processes and motivate individuals to behave in specific ways. They serve as a rationale and justification for actions, thereby giving insights into why behaviors are perceived as beneficial or adversely by individuals. Thus, people use reasons to explain their actions as well as the behaviors of other people (Claudy et al., 2015; Diddi et al., 2019; Westaby, 2005; Westaby et al., 2010). Reasons can further explain the adoption of or resistance to new behaviors. If changes occur and new pieces of information are processed, individuals often reevaluate and modify their behaviors. Reasons are context-specific, that is, they are directly linked to the investigated behavior, and one specific cause can explain behavioral choices and alterations (Westaby, 2005; Westaby et al., 2010). This is why Westaby (2005) outlines reasons "as the specific subjective factors people use to explain their anticipated behavior" (p. 100).

Based on BRT, reasons are an important determinant for explaining decisions as they "help individuals make sense of their world by providing them with causal explanations for

their behavior, the behavior of others, and causal relationships in their environment" (Westaby, 2005, p. 100). Previous research (for example, on fan experience app adoption in the sport sector, Uhrich, 2022; or in the context of leadership decision making, Westaby et al., 2010) showed that reasons for and against behaviors have positive or negative effects on consumers' global motives (whereby Uhrich [2022] focuses on attitude and Westaby et al. [2010] focus on attitude, subjective norm, and perceived control), intentions and behaviors.

Investigating reasons for and against the provision of plant-based diets at sport venues is essential to better understand when and why catering managers may change their offerings toward plant-based diets. The BRT lens is helpful because there is little knowledge into the facilitators and barriers to provide plant-based diets from the managers' perspective. Relying on BRT allows us to explore the context-specific factors, which are assumed to play a crucial role in the decision-making process of what diets are offered at sport venues.

Methodology

Expert interviews

Expert interviews were conducted to investigate the reasons for and against providing plant-based diets at sport venues. Expert interviews as a qualitative research method are specifically useful if knowledge and insights into specific positions, processes, and decisions should be gained, which are explicitly available to certain people (Meuser & Nagel, 2009). Experts are an efficient mean to explore and gain deep insights into a specific context as they have certain responsibilities which are linked to their respective position and experience in the field, providing them with distinct, specialized, and exclusive knowledge (Bogner & Menz, 2009; Doeringer, 2021; Meuser & Nagel, 2009).

Insights from experts are useful for the study's research purpose as a shift toward sustainability at sport events can be observed, including the provision and promotion of plant-

based food options (for examples, see the Olympic Games [Paris 2024, 2023]; or UEFA EURO 2024 [UEFA, 2023]). Moreover, the two top German soccer leagues, first-division Bundesliga and second-division Bundesliga, implemented obligatory sustainability policies in their licensing regulations, including proof of an environmental strategy (DFL, 2022a). This licensing regulation includes sustainable food management. Important aspects regarding food management are local sourcing, plant-based food offerings, and waste reduction, to name but a few examples. Teams further have to report their scope-1 and scope-2 CO₂ emissions and partly scope-3 CO₂ emissions (DFL, 2022b).¹ Additionally, the shift toward providing and promoting plant-based diets among professional German soccer teams can also be seen in the current People for the Ethical Treatment of Animals (PETA) ranking about vegan food offerings at sport venues in the German Bundesliga. The ranking shows which teams provide the most vegan food options at their sport venue. No club was listed in the worst of the four categorization for the first time, highlighting the increase of vegan food options provided (Bollag, 2023).² These examples showcase pro-environmental activities of professional sport organizations. Based on these requirements and trends, managers of the German Bundesliga teams responsible for public catering can give comprehensive insights into reasons for and against the provision of plant-based food options at sport venues.

Data collection and procedure

An expert sample was chosen as interview partners for the inquiry. All 18 German Bundesliga (soccer) teams and associated catering companies of the teams were contacted.

Table 1 provides an overview of the respective teams and catering companies that participated

¹ Scope 1 comprises emissions directly produced by organizations (e.g., energy use at game days); scope 2 comprises emissions indirectly produced by organizations (e.g., by purchasing the needed energy); scope 3 comprises all other indirect emissions related to the organizational activities (e.g., fan traveling).

² The categorization is based on points which are allocated for vegan options provided at sport venues; vegan foods such as fries or pretzels get one point, more complex vegan food options such as noodles or falafel-wraps get three points (Bollag, 2023).

in the study. Where data was available, catering managers responsible for public catering at sport venues were directly contacted. Where data was unavailable, the hospitality and the sustainability departments of the respective team were contacted. All interview partners are considered experts due to their involvement in decision-making processes, experience in the field, and responsibility for public catering at the respective sport venue. Most interview partners had a long-term and close relationship with the team and, due to their position, actively participated in various catering processes at game days and gathered knowledge about stakeholder demands by regularly interacting with them.

[Table 1]

Interviews were conducted via telephone and Microsoft Teams. The guideline of the open, semi-structured interview started with an introduction to the topic and the definition of plant-based food according to the World Health Organization (2021). Then, we outlined the research goal to the experts. Interview questions build upon previous research investigating facilitators and barriers of plant-based food consumption (Lea et al., 2006; Pohjolainen et al., 2015) to explore reasons for and against providing plant-based diets at sport venues. As recommended by Meuser and Nagel (2009), a profound search about plant-based food activities of the teams was carried out in advance. Questions were designed openly to allow informants to explain their views on the topic and reflect their opinion (Bogner & Menz, 2009; Meuser & Nagel, 2009). Follow-up questions were formulated regarding current team food offerings, for example, to get more specific insights (Doeringer, 2021). The procedure of reason-elicitation studies to explore facilitators and barriers for the specific context under investigation aligns with previous studies applying BRT (Claudy et al., 2015; Diddi et al., 2019; Uhrich, 2022; Westaby et al., 2010).

Data analysis

In total, 13 managers responsible for public catering at sport venues were interviewed. The names of participants are not disclosed for confidentiality reasons. They have been replaced with a coded representation. Managers of teams were labeled TO1 to TO8 while managers of catering companies were labeled CO1 to CO5; the labels were randomized; all participants provided informed consent that the names of the team and the company can be stated. Interviews lasted between 30 and 60 minutes.

All interviews were recorded, translated into English, and analyzed with MAXQDA2022. An inductive thematic approach with a realist lens was applied to reveal and extract all reasons for and against the provision of plant-based diets at sport venues from the data (Braun & Clarke, 2006). In the first step, two researchers familiarized themselves with the data by reading and re-reading the interviews. Second, all sentences and phrases were coded, by moving forward and backward through the data, to organize the content and information of the interviews, and to develop an initial framework. In the next step, all codes were reorganized, and themes were worked out. Codes that belong together were linked to the themes to interpret the data, understand informants' narratives, and develop an explanation and understanding for the informants' statements. Both researchers worked through the interviews and compared all codes and themes until saturation was reached. The analysis process was data-driven, and final themes were defined together by both researchers (Braun & Clarke, 2006; Ritchie et al., 2015). The goal was to identify reasons for and against providing plant-based diets at sport venues.

Findings

The expert interviews yield insights into reasons for and against providing plant-based diets at sport venues of German Bundesliga teams. Figure 1 provides an overview of the ten themes that emerged from the data.

[Figure 1]

Reasons for the provision of plant-based diets

In total, five themes and eleven codes linked to reasons for the provision of plant-based food options at sport venues were extracted from the data. These reasons are related to current societal changes (increasing demand), team strategies (pursuing an overall sustainability mission; generating new partners and sponsors), as well as team responsibilities (reducing environmental impact and promoting health; allowing fans to experience plant-based foods).

Meet the increase in fan demand for plant-based food. All managers observed an increasing demand for plant-based diets at sport venues, which is the predominant reason to offer more plant-based food options. One interview partner outlined that “there are between 40-60,000 people” in each stadium and that the number “of vegetarians or vegans” is “similar to the normal portion in the population.” (CO1) Another informant stated that, “the population as a whole is slowly moving in the direction of a healthier diet. And the demand is already increasing.” (CO4) A team official mentioned a recent survey they distributed among fans in the public area over several game days where “the point of vegan food in the stadium had a very high value at the end of the day.” (TO4)

Strongly linked to the increase in fan demand is the quality improvement and the eating enjoyment of plant-based diets. One team official (TO8) said, “I must honestly say that the products have become much better and of higher quality in the last 10-15 years.” The quality of products was highlighted as a decisive factor as “taste is something that makes a plant-based product so accepted or so attractive that it is bought at the end of the day.” (TO2)

Creating an offer that is appealing and considered an alternative to meat products for different customer segments was further named as important. TO7 explained that they thought about what products specific customer segments would enjoy, and they figured out that a vegan nugget “is a child and family product” and they “have got better sales figures than with bockwurst.”

Moreover, it was recognized that people’s attitudes toward plant-based diets are changing: “I think these fears of contact in the fan scene no longer exist. [...] That this aggressiveness, anti-attitude concerning such products has disappeared.” (TO6) Some managers believe that fans make more value-based decisions at sport venues: “I think the topic would have been a no-go 10-15 years ago. But nowadays, we live in a value-based society, more and more people pursue topics based on values.” (TO4)

Some interview partners further assumed that they may be required to provide more plant-based food options in the future, as highlighted in this statement:

I think that at a certain point, the pressure will be so high, and I could also imagine that someone will come up with the idea of implementing a law that the food offered to vegans must or should have the same proportion as for regular meat and fish eaters. (TO5)

Pursue an authentic sustainability mission. There was agreement among the managers that the provision of plant-based food options is crucial for the implementation of an overall sustainability strategy. They believed that the teams need to commit to promoting plant-based diets and stand behind their decision if they want to be perceived as authentic by fans. One catering official mentioned that it must be “altogether authentic and that it is, for those, who want to take the offer, clean food.” (CO2) A manager stated that it is essential “not to create another barrier. That everyone who wants to eat plant-based food does not have the

feeling that you even ask for more money. [...] This would contradict the club's philosophy.”

(TO6)

The team managers were aware that they must take responsibility towards fans. One team official stated:

We, who have such a high reach, the Bundesliga clubs, must make a social contribution at the end of the day. And I think we also must create awareness among the population through our reach. This is also our social mission at the end of the day. (TO3)

Some team managers also stated the specific role their sport organization has in the society:

We have a pioneering role and role model function [...] in all social topics. And in this direction, a certain amount of peer pressure is built up that we offer this product range of vegetarian, vegan, plant-based products because it is an essential aspect of climate protection that we must eat less meat because it is an emitter of greenhouse gases. (TO2)

Another manager said that they will communicate about their plant-based offers via different channels as they “have over 10 million followers in social networks. This is something you can and should use.” (TO8) To support the sustainability mission, providing appropriate catering facilities was considered necessary which are easily accessible for all fans:

To make it as easy as possible for the customer to walk on to one or two concession-stands at most [in each stadium sector; *added by the authors*]. To not get the full offer, but at least a part of what corresponds to his diet. (TO5)

Other managers said that they “will realize additional concession stands” (TO2) and that, if there is reconstruction work in the future, they “will be trying to take [concession stands for plant-based diets; *added by the authors*] that into account” (CO5) to promote such

food options to fans. These activities were considered necessary to signal and bring the sustainability mission to life.

Attract and collaborate with new partners and sponsors. Another reason for providing plant-based diets was to find new partners and sponsors for collaborations. One team official mentioned:

I believe that if you do this authentically as a club, then the market is certainly there to generate and win partners and sponsors, with whom you can then also play such topics together. We are also in contact with 1-2 potential partners through our marketer. (TO8)

One manager of a catering company further elaborates on the possibility to put a club logo on an offering: “If the club [*name changed by the authors*] logo was on a vegan sausage and the fan ran through the barbecue counter, then they would probably also buy this sausage rather than if it is just lying there.” (CO4) Such form of activation is an attractive tool to sponsors that often seek innovative ways to leverage their sponsorship activities.

Incentivize food trials of fans. Managers also saw the opportunity to incentivize plant-based diets at sport venues. One team official outlined the following:

There will always be one or the other who might just try it out of interest or curiosity. And a stadium like this may be ideal to provide a low-threshold offer for the time being. [...] There may always be someone curious, ‘I just want to try it out’. (TO7)

This is of particular interest to managers because fans have become more open toward plant-based food offerings, which is also linked to changes in the fan base: “This paradigm shift or pattern shift also takes place as more women come into sport venues.” (TO1) However, it became apparent in the interviews that, according to the perception of the informants, teams must also be open toward plant-based offerings: “I believe you can only promote it if you stand behind it.” (TO5) This highlights the link of incentivizing food trials to pursuing—and, most importantly, implementing—an authentic sustainability mission.

Reduce environmental impact and promote health. Important reasons for the provision of plant-based diets, according to the interviews, are the high impact of meat-based diets on the environment, the promotion of animal welfare, and the promotion of people's health. A team official mentioned the following regarding their team:

We certainly have about 15-20% players who mainly eat plant-based diets. And this is perhaps a starting point for the clubs to shed some positive light on such offers. [...] Because if they [fans; *added by the authors*] then realize that this is perhaps particularly health-promoting or helps the professional athletes, it may also convince one or the other. (TO6)

Another team official stated that, "It is quite clear that it is about health, the health of people, animals, and the world. And this must be considered holistically. It is about our environment; it is about the health of all of us." (TO1)

Reasons against the provision of plant-based diets

Five themes and 17 codes, which can be linked to reasons against the provision of plant-based diets from the managers' perspective, were extracted from the data. These reasons are related to low demand in conjunction with high effort and cost (low demand for plant-based food; high effort to provide plant-based food), the sometimes missing fit in goals between sporting activities and sustainability (pursue of an authentic mission not distracting from sporting success) as well as infrastructural and processing issues (inappropriate existing mass-production oriented infrastructure; lack of appropriate supply chain for plant-based food).

Low demand for plant-based food. Some managers argued that too few fans request plant-based diets to offer these options on a larger scale. Several managers mentioned that

they offer plant-based diets, but from the “club point of view - there is no demand.” (TO8)

One team official added:

About 10% of the population eats mainly plant-based diets. And that is reflected to some extent in the stadium. [...] That it is just within the expected spectrum, which is maybe also an introduction barrier for the caterer. That there is a certain demand, but it is still quite low. (TO6)

The perceived lack in demand is linked to the difficulty of providing high-quality and enjoyable products within sport venues. One catering manager mentioned that “it is also about the texture of the products, some products have a texture that, after a short time, there is a very rapid loss of quality, also in the taste.” (CO3) Especially, the short consumption time before the game or during half-time is relevant:

Soccer (game; *added by the authors*) has 90 minutes, a break of 15 minutes. [...] You can only eat that (currently provided plant-based diets; *added by the authors*) with two hands. So, you have no time for enjoyment because otherwise you will miss something in these 15 minutes. (CO3)

Managers also reported that fans have little confidence in the capabilities of sport event caterers: “I think many people still don’t trust what the caterers in the stadium are offering in terms of that vegan track.” (TO5) This is also the reason for why “vegetarians, if you talk to a vegetarian, then they say they go to the stadium, but they eat before because they find nothing in the stadium anyway. [...] And vegans certainly not because they do not believe it is possible.” (CO1)

Moreover, fans have certain eating routines and rituals when visiting a game, as stated by one manager: “As a matter of fact: soccer goes hand in hand with a beer, soccer goes hand in hand with a sausage in a bun and the curry-sausage.” (TO5) Another manager pointed out that, “soccer is a kind of cultural asset. And that is deeply ingrained and is heavily and closely

connected with it: Sausages and beer.” (TO7) Also, fans’ attitude toward plant-based diets is considered still unfavorable, which is related to “education”, “income”, and “social class” and that “the clientele that watches soccer” is not open to plant-based diets, according to the interviews with some managers. (TO2; CO4)

Some managers further saw the issue of providing the right number of plant-based diets at sport venues without having too many leftovers. “Everything is always trimmed in a way that you want to have as little food waste as possible.” (TO6) Some managers argued that they currently do not make profit with selling plant-based diets. A team official mentioned that “in many stadiums, actually in all of them, sales figures are below the black line.” (TO7)

Pursue an authentic mission not distracting from sporting success. One reason against providing plant-based diets, according to the interviews, is that most fans mainly care about the team’s sporting success. It became apparent during the interviews that, while teams must be authentic when following a sustainability mission, sporting success is always paramount. The managers argued that teams want to avoid that fans perceive the team focusing too much on not-sport-related topics. If a team performs poorly, fans’ attitude toward sustainability activities changes and they start to criticize the team:

And if we are not successful on the pitch, fans directly start to criticize us for our sustainability activities. They quickly unpack these regular table speeches and phrases. [...] ‘You’d better take care of playing soccer instead of doing the sneaky stuff’ and ‘It’s not your core business.’ (TO3)

Also, the fear of being perceived as overly educative was considered important. Some managers outlined the difficulty of encouraging certain behaviors in a leisure-time activity as shown in the following statement:

The recreational area [...] is a terrible environment to educate people. This is exactly where they do not want to be taught or told what to do, they want to have fun. [...] And

that is not the time to educate people about healthier or sustainable food behaviors. (CO2)

Some informants also recognized that it is challenging to be perceived as a team that “create[s] a serious offer and not just stick a label on the club crest” (TO6) and “to be careful not to engage in greenwashing.” (TO8)

High effort to provide plant-based food. The effort to provide plant-based diets was perceived as a barrier:

If I now create an offer that is just appreciated by a relatively small percentage of visitors and must create offers in certain sectors where there are perhaps only 3,000 to 4,000 visitors in the stadium [...], then the number of products is minimal in these individual sectors, and the effort to provide them is quite high. I would say that this is the inhibition threshold that exists on the part of the caterer. (TO6)

Preparing and providing plant-based food offerings is further considered more difficult than preparing meat-based options. Finding the right staff is difficult as mentioned by one catering official:

You have personnel in the area with a lot of coming and going, [and personnel; *added by the authors*] who are not always so trained. [...] Because then you may have people unfamiliar with the product, who don't get it right. And this is why the fan sometimes has this unsatisfactory experience. (CO1)

Also, a more complex preparation process was highlighted: “This is much more difficult than taking a package of sausages, putting them on the grill, and grilling them. [...] The requirements on production and the griller are very different for whether you make a vegan or a beef sausage.” (CO1)

Moreover, the point of packaging and handling plant-based food options and providing them on time were perceived as issues:

You need to have a packaging for the product that works, like the sausage in a bun with a napkin. Really simple, you can eat it with one hand. [...] If this is somehow too complicated... And even for nuggets, you already need two hands. It must be manageable for the fan, the caterer. (TO2)

The mass suitability and provision on time were underlined by another manager: “It is fast-food, so it also must go over the counter quickly. And the customer must have it and get back to their seat. These are factors where the product you use must be fitting.” (CO3) Lastly, teams face the difficulty of making plant-based diets in every sector of the sport venue “easily accessible for many people” (TO6) to meet fan expectations and avoid the reverse effect that fans complain about not getting specific food options.

Inappropriate existing mass-production oriented infrastructure. The current infrastructure of sport venues is built up to allow mass production of food items. Managers agreed that it is very costly or impossible from an architectural point of view to restructure or develop new concession stands. One manager outlined that there “is certainly a big hurdle right now regarding infrastructure and simply in terms of offering and availability” (CO2). Also, there is a high risk of contamination of plant-based foods and safe use of cooking utensils. One manager mentioned that they would “need new sales units [...], where I can sell my vegan products exclusively. So that I can guarantee the fan or the spectator, ‘what you buy here has never seen a piece of meat.’” (CO4) Another manager stated that people want “other tongs” (CO1) and an “own grill” (TO7) for plant-based sausages which is challenging to realize in concession stands.

Lack of appropriate supply chain for plant-based food. Another reason against providing plant-based diets was that suitable supply chains are only partly existent. Finding the right partners that offer plant-based products of good quality for an affordable price was perceived to be problematic. While some teams cooperated with plant-based suppliers for

specific food items, some managers found it challenging to find the right partner. This problem is linked to current sponsoring contracts and the requirements stated therein:

From the team's perspective, you must look at your sponsorship contracts. There are big sponsorship partners for soccer clubs, it is all about sausage, beer, coffee and maybe ice cream products. [...] If you want to become more plant-based, this must be reflected in this area first and foremost. You must sign the appropriate contracts with the appropriate supply partners. (CO5)

General Discussion

The study's goal was to investigate context-specific reasons for and against the provision of plant-based diets at sport venues. The expert interviews with German Bundesliga team managers responsible for public catering allowed us to gain insights into the decision-making process of why these managers provide or do not provide plant-based diets. Through the BRT perspective, reasons for and against providing plant-based diets at sport venues were explored.

Theoretical and Managerial Implications

Most studies regarding plant-based, vegetarian, vegan, or organic consumption and purchase behavior focus on *individuals'* facilitators and barriers (Lea et al., 2006; Meyer & Reguant-Closa, 2017; Pohjolainen et al., 2015; Tandon et al., 2020). This is surprising, because *organizations*, that is, meso-level actors, can define the choice architecture (here: what is provided on-site) and hence influence individuals' decision-making process efficiently. Individuals are micro-level actors who make purchases from the option that are provided to them. Our study partly fills the research gap on when and why managers acting on behalf of their organization may or may not provide plant-based diets.

In line with Trendafilova et al.'s (2013) claims, different drivers force teams to change offerings and overcome barriers toward plant-based food offerings. The reasons for providing plant-based diets should have positive effects on a team's carbon footprint. Also, they can act as a social-tipping point for fans to experience plant-based offerings (Aschemann-Witzel & Schulze, 2023) and overcome barriers people may face (Ram & Sheth, 1989), such as a negative attitude toward plant-based diets and skepticism regarding a team's ability to provide high-quality and tasty plant-based diet options. Also, they may increase fan engagement via plant-based food offerings, and the story behind the provision to fans. This might be the case because a potential increase in the perception of fit between themselves and their sustainable activities (here, plant-based diet promotion) (McCullough & Trail, 2023). Additionally, engaging in plant-based diet promotion and provision should help teams position themselves as a sustainable organization and signal important values (Cornwell & Koenigstorfer, 2017; Pape et al., 2023). Finally, promoting and providing plant-based diets can help to attract new partners and sponsors in a field where brands often have, or seek for, similar personality traits by providing a unique and attractive positioning for marketing activities of companies (Cornwell & Koenigstorfer, 2017; Stadler Blank et al., 2017).

Reasons against offering plant-based diets at sport venues were insightful. Sport spectators often have certain rather unsustainable food consumption habits when visiting a game (Cornwell & Koenigstorfer, 2017), which can often be traced back to experiences with visiting sport events in childhood (Koenigstorfer, 2018). Therefore, the demand for plant-based alternatives was perceived as still low in the present study. Indeed, most on-site foods offered must be considered non-sustainable and unhealthy, be it in the 2010s or 2020s (Ireland & Watkins, 2010; Parry & Richards, 2022). Managers perceived the difficulty in finding the right balance between focusing on sporting activities and providing plant-based options from the fan perspective. While providing sustainable food options places a particular

role regarding sustainability strategies of sport teams, specific fan groups mainly care about sporting success of teams (for example, see Casper et al., 2017), which makes it sometimes difficult to strengthen the focus on the topic of plant-based diets without being subject to criticism. Also, the high effort to provide high-quality and enjoyable plant-based food options in combination with an inappropriate infrastructure and capacity of sport venues and concessions stands to guarantee the right preparation of plant-based food options and to extend offerings were considered barriers by managers. Finding the right partners and sponsors to establish a safe supply chain for plant-based alternatives was seen as problematic, too. While more companies enter the market and meet the required quality, plant-based products of these companies are perceived as expensive, or companies cannot provide the number of products for a large-scale provision at a sport venue. From a theoretical perspective, we note that one strong reason against a certain behavior (here: low demand) can lead to the point that persons do not engage in a behavior (here: provide plant-based foods) at all (Claudy et al., 2015; Westaby et al., 2010). Thus, regulations to provide a certain number of plant-based alternatives or the implementation of plant-based game days, as anticipated by some managers, can be considered as a powerful tool to increase plant-based diet provision.

In the interviews, some managers argued that they base their arguments upon sales figures, cost-benefit calculations, surveys, and annual general meetings. While these data were not made available to us, these insights help better understand how managers make decisions (Rousseau, 2006; Westaby et al., 2010). Yet, managers were also aware that sport teams have a particular role-model function in society, highlighting the need to promote plant-based diets and meet stakeholder expectations, even if teams are currently not making profits with these offerings.

While sport venues are considered places that can promote healthier diets and engage fans in a healthier lifestyle (Parry et al., 2019), the interviews revealed that there are specific

barriers for managers to establish more plant-based diets for fans. These barriers are linked to the infrastructure of sport venues but also to fans' sometimes negative perception of plant-based diets and their routines (Ireland & Watkins, 2010; Parry et al., 2017; Parry & Richards, 2022). The missing supply chain for affordable high-quality plant-based food can be seen as another issue. However, there is the possibility to offer more plant-based diets, relying on a less efficient supply chain, for a higher price when food options are tasty (see also findings of Ireland & Watkins, 2010), according to the perception of some managers.

Limitations and future research

Our study is not free of limitations. One limitation is that expert interviewees may have given socially desired answers. They may have exaggerated regarding their efforts to provide plant-based food. In the future, researchers may conduct a long-term case study with specific teams and sport venues to explore how food offerings change over time by repeatedly investigating offerings as well as catering managers' and fans' perspectives.

Second, the qualitative approach did not allow us to assess the importance of specific reasons for the actual offering. In future studies, researchers may apply the reasons and assess their importance in a quantitative study with catering managers. Thus, our BRT-informed framework could be applied in future studies.

Third, the study focuses on German Bundesliga teams (soccer). Yet, food behaviors of fans may differ between countries and sports. Thus, it would be beneficial to explore catering managers' perspectives regarding reasons for and against providing plant-based diets at sport venues in other countries and identify the role of culture and social norms in providing certain foods in sport venues.

Lastly, the study considers managers only. It would be interesting to complement the management insights into reasons for and against the provision of plant-based foods with fan

insights into reasons for and against for the consumption of plant-based foods. Matching the reasons from the suppliers' perspective with reasons from the consumers' perspective may reveal win-win situations in which suppliers satisfy a want (desire).

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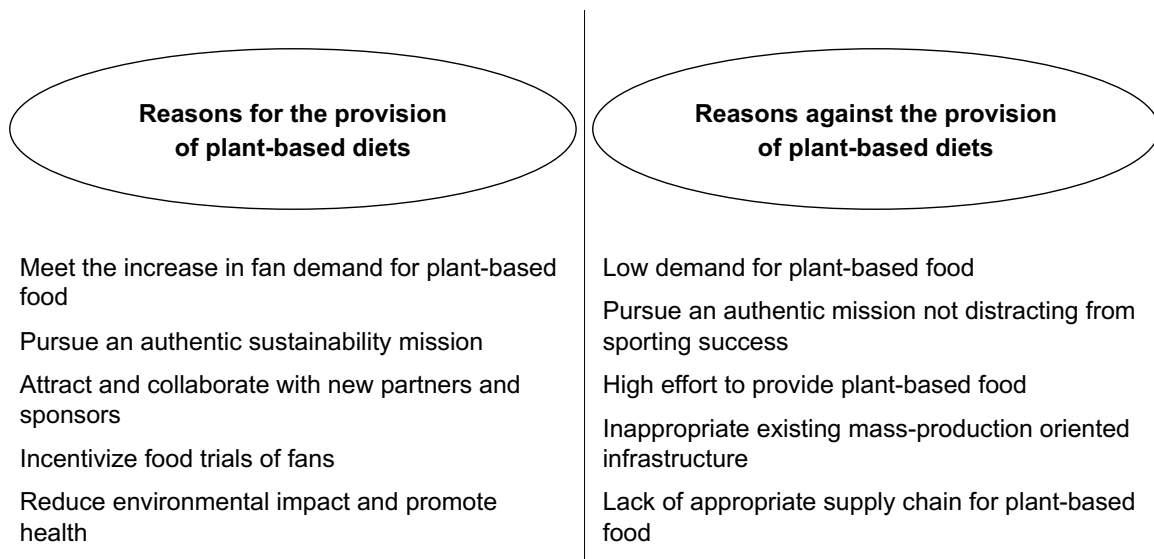
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Table 1. Overview of study informants

Club or catering company	Age (years)	Highest education	Time in position (years)
Aramark	55	Diploma	8
VfB Stuttgart Arena Betriebs Ltd.	n.s.	Diploma	17
Aramark	57	Diploma	7
1. FSV Mainz 05	41	Diploma	1
Formerly Aramark	62	Diploma	22
TSG 1899 Hoffenheim	51	Diploma	5
TSG 1899 Hoffenheim	37	Diploma	0.5
FC Schalke 04 Arena Management Ltd.	42	Diploma	6
Bellini	49	Diploma	15
Bayer 04 Leverkusen	45	Diploma	24
Borussia Mönchengladbach	46	Diploma	19
VfL Bochum 1848	48	Diploma	4
Levy Restaurants wohninvest	52	High	12
Weserstadion		School equivalent	

Notes. n.s. not stated.

Figure 1. Themes identified in the present study



Appendix A. Overview interview guideline and main questions.

Introduction	<p>Dear Sir or Madam,</p> <p>today's interview is about your experiences regarding fans diet behavior at sport venues in the public area. I want to discuss with you whether and how the team and caterers of the German Bundesliga teams can introduce more sustainable and plant-based diet options. The focus of the study is on a mainly plant-based diet – a diet that does not necessarily exclude meat, but significantly reduces meat consumption. Before we start, let's highlight the definition of plant-based diets according to the World Health Organization: "Plant-based diets constitute a diverse range of dietary patterns that emphasize foods derived from plant sources coupled with lower consumption or exclusion of animal products." This means that plant-based diets do not completely exclude animal products, but are associated with at least a reduction in meat consumption. The goal of the study is to reveal reasons for and against a primarily promotion of plant-based diets at sport venues.</p>
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<p>Questions referred to reasons for the provision of plant-based diets and how sport teams can provide plant-based diets at sport venues in general</p>	<ol style="list-style-type: none"> 1) In your view, what are the predominant reasons for the promotion of plant-based diets at sport venues? 2) In your view, what changes can teams undertake to promote and advertise plant-based diets at sport venues? 3) In your view, what further possibilities do teams have to create awareness of plant-based diets? 4) In your view, do sport teams have to extend their plant-based diet offerings in the future?
<p>Questions referred to reasons against the provision of plant-based diets in sport plant-based diets at sport venues?</p>	<ol style="list-style-type: none"> 5) In your view, what are the predominant reasons against the promotion (and extension) of plant-based diets at sport venues from the team perspective? 6) In your view, what are the predominant reasons why fans do not consume plant-based diets at sport venues?

Appendix B. Overview of themes and codes of reasons for the provision of plant-based diets and example statements.

Themes <i>(/Description)</i>	Code <i>(/ Description)</i>	Example
Meet the increase in fan demand for plant-based food	<i>Rising demand for plant-based diets at sport venues</i>	“In any case, this is supported by the fact that awareness among the population as a whole is slowly moving in the direction of a healthier diet. And the demand is already increasing.” (CO4)
<i>Improvement of taste and nature of plant-based products over the past years</i>	High quality of plant-based food	“And if it's (plant-based food options; <i>added by the authors</i>) that good, then it can be introduced on a mass scale. Because the keyword ‘suitable for the masses,’ as I've already mentioned, is ultimately the decisive argument for the caterer to be able to make it accessible to everyone in terms of infrastructure, without remaining a niche product. Which is always associated with extreme additional expense and high logistical issues.” (TO2)
<i>Increase pleasure of plant-based diet among customer segments</i>	High eating enjoyment of plant-based food	“We want to make everyone an offer, regardless of whether they are now fascinated vegetarians or not. Simply create an alternative offer. And this alternative offer should appeal to everyone. It should not, as you have just said, lead to people being ashamed to buy vegetarian, vegan products, but rather that people saying ‘I'll try this out and it tastes delicious’.” (TO2)
<i>Openness and stance toward plant-based diets is changing</i>	Increase in fan attitude toward plant-based food	“I think these fears of contact in the fan scene no longer exist. I think that has changed in the last 3-4 years. That this aggressive, anti-attitude concerning such products has disappeared. I guess back then people had more issues with it. But it is now more like, ‘If someone wants to

		eat that, then you should just offer it and let him eat it.’ I would say that you can see that something has changed overall.” (TO6)
<i>Changes in society toward value-oriented decisions</i>	Sustainable value-driven fan food choices	“At the end of the day, if we’re always talking about diversity in society as a whole, and this topic is also part of it. We should make sure that we pick up all fan groups, customer groups, and people.” (TO4)
<i>Perception that customers are willing to pay premium prices for high quality plant-based products</i>	Profiting from high willingness-to-pay when selling plant-based food	“But the expectation of fresh and delicious are above the aspect of price. The customers, the guests are also willing to spend money if it is a delicious and good product. And in this respect, we will not be able to convert everyone to eat plant-based diets on game day. But that’s not the point, we want to make the game experience attractive, we want to make the stadium experience attractive.” (TO2)
<i>Possible future obligation to offer a certain amount of plant-based diets</i>	Meet anticipated changes in requirements	“I think that at a certain point, the pressure will be so high, and I could also imagine that someone will come up with the idea of implementing a law that the food offered to vegans must or should have the same proportion as for regular meat and fish eaters. I do believe that the pressure will eventually be so high that many can no longer avoid opening up to providing plant-based food.” (TO5)
Pursue an authentic	<i>Importance of being credible and reliable regarding the</i>	“Exactly, to be authentic with it and to say at the end, if we go into detail, to use equipment solely to preparing plant-based food options. That it is also altogether authentic and that it is,

sustainability mission	<i>promotion of plant-based offerings</i>	for those, who want to take the offer, clean food. Without having contact with meat products.” (CO2)
<i>Accountability of sport teams for their activities and environmental impact</i>	Be a responsible club	“We who have such a high reach, the Bundesliga clubs, have to make a social contribution at the end of the day. And I think we also have to create awareness among the population through our reach. That is also our social mission at the end of the day.” (TO3)
<i>Sport teams are perceived as idols and can be a guiding principle for fans</i>	Be a role-model club	“We have over 10 million followers in social networks. That's something you can and should use. And as I said, we're going to start the new season with the new veggie corner. [...] We will also go out into the public with it. You will get a lot of criticism for it because in social media there is enthusiasm for one side and the other. But of course, we will also use our channels to draw attention to the fact that these products will be available from us in the coming season.” (TO8)
<i>Importance of implementing the right infrastructure and points of sales to provide plant-based diets</i>	Provide appropriate catering facilities to support the sustainability mission	“We will realize additional concession stands because we are changing something structurally. ... We are building a relatively extensive area. And there, food containers are constructed with completely integrated kitchens, which makes it possible to produce a good product independent of its components. They are entirely self-sufficient.” (TO2)

Attract and collaborate with new partners and sponsors	<i>Promoting plant-based diets as a tool to generate new income streams via sponsoring and cooperation</i>	“And that's also interesting for partners, who want to bring such products to the markets, isn't it? Meat consumption is decreasing, while plant-based consumption is increasing. So we are also playing with the market.” (TO8)
Incentivize food trials of fans	<i>Sport venues can function as social-tipping points for fans to get in touch with plant-based diets</i>	“Between the match days a 'market of possibilities', where you simply enable various regional suppliers to present their products. To start a fan project with the various fan clubs where you say: 'Watch out, you come to the market of opportunities and can decide four products that will be used in the stadium next year'.” (CO5)
<i>Changes in the stakeholder acceptance of plant-based food offerings</i>	Fan openness toward plant-based food	“And the change, this change of perspective or paradigm, only occurs when you are in young adulthood, when you start to question this meat- or plant-based diet. This paradigm shift or pattern shift also takes place as more women come into sport venues.” (TO1)
<i>Necessity of sport teams to be open-minded toward plant-based diets</i>	Club openness to promote plant-based food	“I believe you can only promote it if you stand behind it. I see myself as the best example, 4-5 years ago, I would have said ‘What should I do with a vegan-curry-sausage?’ I am honest about that. You have to be open to it.” (TO5)
Reduce environmental	<i>Plant-based diets are an important mean to</i>	“What speaks for it is quite obvious: It is healthier. It makes more sense from an environmental point. It's more sustainable. And in the long run, because of the consumption

impact and promote health	<i>lower the carbon footprint and increase health of individuals</i>	of resources in this world, that's what it's going to come down to. All the research says that plant-based is the food of the future." (CO5)
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Notes. Themes, codes, descriptions and examples of reasons for the provision of plant-based diets; themes and codes are shown in bold; description are shown in italic; "TO1 to TO8" label of managers of teams; "CO1 to CO5" labels of managers for catering companies; all labels were randomized.

Appendix C. Overview of themes and codes of reasons against the provision of plant-based diets and example statements.

Themes <i>(/Description)</i>	Code <i>(/Description)</i>	Example
Low demand for plant-based options	<i>Overall request for plant-based food options at sport venues is too low to offer them on a broader scale</i>	“About 10% of the population eats mainly plant-based diets. And that is reflected to some extent in the stadium. I wouldn't consider the difference to be that great. These are at least the experiences we have made based on the sales figures after introducing the vegan sausage. That it's just within the expected spectrum, which is maybe also an introduction barrier for the caterer. That there is a certain demand, but it is still quite low at the moment.” (TO6)
<i>Difficulty to prepare plant-based diets in a way that they are tasty and requested</i>	Low quality of plant-based food	“The question is whether the products can be made in such a way that there will be demand. [...] I made the experience of being in a stadium and then trying something vegetarian, and it was this famous vegetable patty, which was awful, I will never eat it again. And that's why I say the products must become even more attractive.” (CO1)
<i>Difficulty to prepare plant-based diets in a way that they are perceived as a pleasure by fans</i>	Low eating enjoyment of plant-based food	“And I think it's still in many people's minds the issue of plant-based is a substitute product. It's not a real product, it's a substitute for something.” (CO3)

<i>Fans have deeply rooted food behaviors when visiting sport games</i>	Plant-based food is against fan routines and rituals	“I can only describe it from an emotional perspective. I think that soccer itself is based on the motto: soccer, the smell of sausages in the stadium, beer consumption, and emotional spectacle on the pitch. [...] I think everything has grown historically, especially in soccer, there is a lot of this sense of tradition that plays into it. And that's why I think creating a quick turnaround from one day to the other is difficult.” (TO3)
<i>The perception of plant-based diets is mostly negative by fans</i>	Low fan attitude toward plant-based food	“You already have this additional offer and we've been trying to do that for several years, and we're still trying to do that. Why do I say try? Because, of course, the response in the areas, it must be said, there is a small group that is interested in it, but it is not a comparable demand to the traditional products” (CO1)
<i>Lower production of plant-based diets to reduce food waste due to uncertainty of demand</i>	Demand of plant-based food is difficult to plan in terms of avoiding food waste	“We throw away what feels like 100 tons of food a year in the public and VIP areas combined. What we don't want at all. We don't like it. That means we have already started to reduce some of the food, which goes faster in the VIP area than in the public area.” (TO8)
<i>Fans don't believe that caterers can prepare plant-based diets in a</i>	Lack of trust in the provider's capability to provide plant-based or vegan food	“I think many people still don't trust what the caterers in the stadium are offering in terms of that vegan track.” (TO5)

<i>safe and tasty way</i>		
<i>High costs for plant-based products and low demand do not allow teams to generate money with plant-based offerings</i>	Low profit margin when selling plant-based food	“That's an interesting discussion because it's actually the case that plant-based sausages are more expensive than meat-based sausage. But we have set ourselves the principle here that if we want to offer something, we also want to offer it at the same price. We don't want to create an additional barrier, we don't want to give the person who wants to eat a plant-based diet the feeling that we're taking even more money from him. But it is an exciting question because our catering company would have to offer the product more expensively.” (TO6)
Pursue an authentic mission not distracting from sporting success	<i>Sport teams should implement sustainability activities without disregard sporting activities</i>	“And something like that is taken straight by the fan base with pleasure as negative criticism if something does not run sportily. Then fans quickly unpack these regular table speeches and phrases. And then you hear, my colleague can certainly confirm this, that it is also often the case with us via social media, ‘You'd better take care of playing soccer instead of doing the sneaky stuff’ and ‘It's not your core business.’” (TO3)
<i>Promoting plant-based diets can backfire if not strategically planned</i>	Avoidance of fan perception of losing focus on sporting success	“And in this direction there was a suggestion of one club employee who has no idea of soccer: ‘You could replace the sausage on the day with a vegan sausage.’ (referring to a one-time sustainability game day; <i>added by the authors</i>) I think it is definitely the wrong approach because this person would not have stood at the concession stand and listened to the abuse of 99% of the fans.” (CO4)

<i>Fans do not want to be told what to do and consume in a leisure time activity</i>	Avoidance of fan perception of being overly educative	“You won't, especially since we have already tried in other places, be able to do that in leisure time, in the recreational area. That is a terrible environment to educate people. That's exactly where they don't want to be taught or told what to do, they want to have fun.. And it is as much a part of that as alcohol. And that is not the time to educate people about healthier or sustainable food behaviors.” (CO2)
<i>Fear of fan perception that a team presents itself as sustainable but behaves differently in everyday life</i>	Avoidance of fan perception of greenwashing	“But you always have to be careful not to engage in greenwashing. You can't go out with such a theme and say, "We're so green, we're the saviors of the universe." (TO8)
High efforts to provide plant-based diets	<i>Extensive amount of work is necessary to prepare plant-based diets</i>	“If I now create an offer that is just appreciated by a relatively small percentage of visitors and have to create offers in certain sectors where there are perhaps only 3,000 to 4,000 visitors in the stadium, then I can based on the percentage and based on what is actually consumed - one should not assume that more than 50% of the spectators actually take a food offer in the stadium -, then the number of products is minimal in these individual sectors, and the effort to provide them is quite high. I would say that this is the inhibition threshold that exists on the part of the caterer.” (TO6)

<i>Necessity of training for staff to prepare and provide plant-based diets</i>	Shortage of trained staff that prepares and provides plant-based or vegan food	“One should not underestimate the production because it is a difference whether you have a meat or a plant-based patty. There's actually training that needs to be done.” (CO1)
<i>The preparation of plant-based diets is related to an extensive preparation process</i>	Special requirements in preparing plant-based or vegan food	“It's more the amount of work behind it. All the vegan dishes we sell in the public area are prepared in our own stadium kitchen. These are products we buy and then modify again with certain spices or cooking methods. Then they are vacuum-packed. And all warm dishes are warmed up in a so-called sous-vide process in the concession stand. That means thrown into a water bath. And the amount of work behind that, you can't underestimate that. When we started introducing the vegan curry sausage, we started filling 20 portions of vegan curry sausage for 50,000 spectators. These 20 portions were enough for the first or two to three game days. Meanwhile, we prepare over 300 vegan portions of curry sausage. And that is a difference, whether an employee in the kitchen fills 20 portions or 300. ... And I think that many caterers say, ‘No, it's too much work for me, there's no cost-benefit factor’ because, in the end, you have to earn money with it.” (TO5)
<i>Products need to be produced and handled easily by caterers and fans</i>	Special requirements in packaging plant-based or vegan food	“And you need to have a packaging for the product that works, like the sausage in a bun with a napkin. Really simple, you can eat it with one hand, have your beer in the other hand, and put a little ketchup on it. If that's somehow too complicated, and even for nuggets, you already need two hands. It must be manageable for the fan, the caterer, packaging, billing.” (TO2)

<i>Lack of resources and space to quickly prepare and provide plant-based diets at concession stands</i>	Special requirements in providing plant-based or vegan food on time	“Plus the fact that you have to take into account the possibilities of production. You always have this phenomenon in this circulation level that you make a large part of the sales in a relatively small time window. A few minutes before the game, 15-30 minutes before the game, and half-time mainly. That means you always need products that you can produce easily and quickly, and that turn over well. So you can't offer complicated vegetarian or vegan things, that will be relatively difficult in terms of logistics in the concession stand area.” (CO1)
<i>Lack of capacity to implement plant-based offerings at every sector and make it reachable for all customers</i>	Overly high fan expectations on in-stadium availability	“And when I talk about introducing a new product as a caterer, I have to make sure that I can also make this product available in each of these six sectors. Because otherwise, the reverse effect occurs, with people saying, ‘Why can't I get my meat-free sausage variant in this specific sector?’” (TO6)
Inappropriate existing mass-production oriented infrastructure	<i>Current construction of sport venues does not allow to come up with new concession stands to offer and prepare plant-based diets</i>	“The fact is that the provision of such offerings can actually be a problem. In our case, for example, we have a relatively old stadium in terms of infrastructure, so we have a total of six individual sectors where fans can be. Unlike perhaps modern arenas, where every area is accessible to all fans, this is very limited here.” (TO6)
<i>Due to the missing</i>	High risk of contamination of plant-based or vegan food	“Capacity is certainly one reason. Let's take the example of a vegan grilled sausage, I can't put it next to a pork sausage. Or next to a conventional sausage, which means I need my own

<i>production area a clean preparation of plant-based diets is not always possible</i>		grill, I need the capacity to be able to guarantee that. And that is usually difficult to implement in the individual concession stands.” (CO4)
<i>Devices used for the production of plant-based diets should not have been used for the production of meat options</i>	Safe use of cooking utensils for plant-based or vegan food	“Nevertheless, we must ensure that we stay clean in the production in the concession-stands, in the truest sense of the word. That's why it was very quickly clear to us that we would take a product that could be prepared independently in the convectomat.” (TO7)
Lack of appropriate supply chain for plant-based food	<i>Supplier with high qualitative and affordable plant-based products are difficult to find</i>	“So we are working together with someone in the vegan sector. And there are also considerations to using the products in the stadium or at concerts.” (CO1)

Notes. Themes, codes, descriptions and examples of reasons against the provision of plant-based diets; themes and codes are shown in bold; description are shown in italic; “TO1 to TO8” label of managers of teams; “CO1 to CO5” labels of managers for catering companies; all labels were randomized.