



## Analysis of the effect of green marketing communications on green purchasing behavior of sports products by considering the mediating role of consumer attitude

Seyed Mohammad Reza Movahed<sup>1\*</sup>, Moslem Soleymanpor<sup>2</sup>, Reza Norouzi Ajirloo<sup>2</sup>

1. PhD Candidate of Marketing, Department of Business Administration, Faculty of Social sciences, University of Mohaghegh Ardabili, Ardabil, Iran
2. Assistant professor of Marketing, Department of Business Administration, Payame Noor university, Tehran, Iran  
Corresponding Author Email: [Reza.movahed36@gmail.com](mailto:Reza.movahed36@gmail.com)



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### ABSTRACT

The aim of this study is to analyze the influence of green marketing communication on green purchasing behavior for sporting goods, taking into account the mediating role of consumer attitudes. This study is application-oriented in terms of its purpose and descriptive-survey-based in terms of its nature, taking into account the characteristics of the statistical population. Furthermore, this study falls into the category of correlation research, as it examines the relationships between variables. The statistical population of the study was consumers of sporting goods. The Morgan table was used to determine the sample size, and given the large statistical population, the maximum sample size of 384 individuals was used using the available sampling method. Standard questionnaires were used to collect the information, and the data required for this study were collected using questionnaires: pricing [Van Westendorp \(1976\)](#), educational level [Correia et al. \(2023\)](#), advertising and sales promotion [Haghighat \(2013\)](#), purchase intention [Kim \(2008\)](#), and consumer attitude [Mustafa et al. \(2007\)](#). In this study, the partial least squares method was used to analyze the hypotheses with SmartPLS3 software. To evaluate the external validity of the model, reliability tests including Cronbach's alpha coefficient and composite reliability, content validity, convergent validity, and divergent validity were examined, and all tests were confirmed. The results show that the components of green marketing communication have a direct and significant impact on green purchasing behavior and that a strong correlation was found between the attention of consumers of sports products to the green marketing communication of companies and green purchasing behavior. In addition, the positive effect of the mediating variable of consumer attitude on the relationship between green marketing communication and green purchasing behavior was confirmed. Based on the results, it can be concluded that the need for green marketing and a change in consumer attitudes toward an environmentally friendly lifestyle have a strong influence on green purchasing behavior.

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## 1. INTRODUCTION

In recent years, concerns about the environmental problems caused by daily consumption have become widely recognized among consumers (Kumar et al., 2021). Given the growing environmental awareness in societies, regular environmentally conscious behavior can not only help offset the damage caused to the environment, but also create a favorable environment for businesses. Both consumers and businesses, especially in more developed economies, are increasingly aware of the urgent need to adopt more environmentally friendly consumption habits and production strategies (Correia et al., 2023). The daily purchase of environmentally friendly products for consumption is a good example of environmentally conscious behavior that can minimize and solve many current environmental threats and has increasingly attracted the attention of businesses and consumers in recent years (Sheng et al., 2019).

Pro-environmental consumer behavior differs from general purchasing behaviors. Consumer attitude is considered the most important factor in purchasing behaviors (Alinezhad et al., 2022). Despite customers' positive attitudes towards green products, previous studies show that consumers do not buy green products as much as expected, and the market share of these products is regularly less than 4% of total sales (Zaremohzzabieh et al., 2021). In this context, the role of sport products and their purchase intention stands out. On the other hand, many studies in the field of green purchasing behavior indicate that consumers are gradually motivated to buy green goods (Khan & Kirmani, 2018), but the causes of this behavioral gap have not been sufficiently studied. Green marketing communication is important for companies because green thinking should go hand in hand with sustainable production. However, Rustam et al., (2020) have pointed out that incorporating sustainable production is an essential first step. It is also important that current and potential customers are aware of this. Only through such disclosure can

consumers' environmentally conscious thinking be aligned with the responses of environmentally friendly companies. This form of communication transforms latent environmentally conscious intentions into environmentally conscious behavior, which is generally understood as "green consumption" (Rustam et al., 2020). Therefore, it is possible to promote sustainable consumption through the marketing of environmentally friendly products in order to achieve the goal of reducing damage to the international environment (Wang et al., 2019). Accordingly, a company's communication with the public is crucial in influencing the perception of the company in the market and shaping attitudes toward environmentally friendly products that promote sustainable consumption. In fact, it seems necessary to focus on green marketing communication and consumer behavior, i.e., how consumers respond to different marketing communication strategies and how this communication influences consumer behavior and attitudes. Outdoor advertising as a green marketing tool can familiarize sporting goods consumers with environmentally friendly products in a cost-effective and efficient manner (Shahvali Kohshouri et al., 2022).

Consumers have a unique relationship with sporting goods because they often train with the sporting goods they purchase and sporting goods are closely related to their performance on the field (Chiu & Won, 2016). Second, sporting goods have a high consumption rate. Selling these products requires effective green marketing strategies and programs. Most consumers of sporting goods still lack "green" knowledge, and due to low awareness of green products, companies are not yet pushing for further development of green products and are not working much on green products. Social media marketing activities have a positive and significant impact on the intention to repurchase sports products and on sustainable social connections (Karimi & Ahmadi, 2024). In recent decades, especially since the Industrial Revolution, the

increasing and growing consumption of natural resources by humans worldwide has led to numerous environmental problems that severely impair biodiversity and threaten human well-being (Masson et al., 2021). Environmentally conscious behavior is a term for individual or collective actions that address environmental problems. Essentially, environmentally friendly behavior is the embodiment of green thinking. Given the influence of corporate communication on shaping perceptions and attitudes, green marketing communication can promote environmentally friendly behavior by empowering consumers to take individual steps that can collectively become societal actions to address environmental problems. On the other hand, green marketing communication serves as the basis for sustainable production and consumption programs. Within companies, increasing environmental awareness and green thinking are leading companies to evaluate their social and environmental performance. For consumers, this affects their perception and attitude toward a company or its offerings, which are decisive factors in consumer behavior as they influence the aspects underlying the customer-brand relationship (Nguyen & Mogaji, 2022). Green marketing communication comprises four components: education level, product promotion, pricing, and advertising. Appropriate environmental education can influence environmental behavior in various ways. Research shows that the level of environmental education is closely related to environmental knowledge. For example, researchers suggest that in environments where environmental education is promoted as an educational method, the expected environmental behavior leads to a reduction in harmful effects on the environment (Alnaemi & Akghamdi, 2022). Previous research literature has also shown the opposite, namely that an increase in environmental knowledge can lead to increased awareness of people's individual environmental impacts, but not to the development of environmental behavior (Hansmann et al., 2020). Education Environmental

education is one of the most effective tools for educating and training people to act in an environmentally conscious manner and behave in an environmentally friendly way (Ferrer et al., 2020). Environmental education helps people become aware of the consequences of their actions, provides information on how to solve environmental problems, and develops people's ability to combat and prevent environmental destruction. Environmental education involves the exchange of knowledge to create values, attitudes, and skills that prepare people to take positive environmental action together (Ardoin, 2020).

Research shows that formal education level can have a significant impact on consumers' intention to buy green products, including green sport products. A study on fake apparel products showed that formal education level has a moderating effect on the relationship between subjective norm and purchase intention (Mbura, 2023).

A study on recycled products has shown that environmental knowledge does not directly influence attitudes, but it does influence product quality and purchase intention (Sun et al., 2018). Studies on environmentally friendly food and environmentally friendly building products also underscore the importance of environmental awareness, knowledge, and perceived product quality for purchase intention (Zheng et al., 2022). In summary, the relationship between educational level and purchase intention for environmentally friendly sports products is complex and is likely influenced by factors such as environmental knowledge, attitudes, and perceived product quality. While some studies show that educational level is not a significant factor, others suggest that it may play an important role.

Product advertising plays an important role in influencing consumers' purchasing decisions for environmentally friendly sports products. Several factors related to advertising influence the purchase intention and actual purchasing behavior of environmentally friendly and green products (Nirmala & Shyamala, 2022); Sales promotion

activities such as discounts, coupons, and packaging have a positive effect on consumer attitudes toward sports products and their purchase intention. However, the effect of sales promotion activities can be mitigated by factors such as brand awareness (Gu, 2019).

Research has shown that consumer-based pricing is more effective for sport products than traditional cost-based pricing methods. By understanding the prices consumers are willing to pay, sport brands can set prices that maximize both sales volume and profit margin (Chiu et al., 2018). Price influences purchase decisions. The higher the price, the lower the purchase decision, and vice versa. Affordable prices for sport products, perceived by consumers, have not led to immediate purchase decisions by consumers (Widyastuti & Said, 2017). Purchase decision is one of the steps taken by customers before making a decision about a product. Decision-making is an individual's activity that directly involves receiving and using the product. Purchase decision is measured through; 1. attitudes of others, 2. purchase situation, and 3. purchase decision at the moment of purchase. A specific purchase process involves the following sequence: need recognition, information search, alternative evaluation, purchase decision, and post-purchase behavior. Purchase intention is also affected by unpredictable situational factors (Widyastuti & Said, 2017).

Consumers' purchasing decisions for a particular product are also influenced by their perception of price, product, advertising, and distribution (marketing mix) (Lin et al., 2015). Advertising on social media and product packaging can significantly influence impulse buying behavior for sporting goods. Brand image plays a moderating role here: a stronger brand image strengthens the relationship between advertising, packaging, and impulse purchases. In summary, the characteristics of sports advertising, consumer engagement, the use of celebrity endorsements, the type of advertising message, and the type of product can influence the effectiveness of advertising in motivating and encouraging the purchase of sports products. Marketing professionals should carefully consider

these factors when designing their advertising strategies (Saraswati & Pratika, 2024).

In recent decades, companies' attitudes toward environmental protection have gradually improved, and several companies have contributed significantly to promoting sustainable consumption. In addition, companies have increasingly adapted their activities to a more sustainable approach as new technologies have been introduced that aim to improve the environmental, social, and economic impacts of business activities (Brozovi et al., 2020). According to Do Paco et al., (2019), green marketing is particularly important when consumers show little interest in certain products, including green products. Tan et al., (2022) emphasize that green marketing is essential for changing consumers' environmental behavior and that companies should pay particular attention to green communication, as it can strengthen customer confidence in a brand's environmental commitments and thus have a positive impact on green purchases.

In a study titled "A Framework for Examining Green Purchasing Behavior with a Focus on Perceived and Contextual Factors," Teimourfamianasl & Khoddami (2023) concluded that perceived individual factors have a greater impact on green purchasing behavior than contextual factors. On the other hand, contextual social and environmental factors do not affect the green purchasing behavior of Iranian consumers. Furthermore, perceived social value has less impact on green purchasing behavior than perceived emotional value.

In a study entitled "Factors Affecting Green Purchasing Behavior Among Millennials: The Moderating Role of Religious Values," Qureshi et al., (2023) concluded that environmental awareness, environmental knowledge, and perceived ecological value have a positive and significant influence on attitudes and subjective norms. The Moderating Role of Religious Values," Qureshi et al., (2023) concluded that environmental awareness, environmental knowledge, and perceived ecological value have a positive and significant influence on attitude and subjective norm. Furthermore, attitudes

toward purchasing environmentally friendly products and subjective norms are positively and significantly related to the intention to purchase environmentally friendly products, and the intention to purchase environmentally friendly products is also positively and significantly related to purchasing behavior for environmentally friendly products. However, knowledge about environmentally friendly brands shows a positive but insignificant correlation with attitude and subjective norm. [Grebmer & Dieffenbach \(2020\)](#) In a study entitled "Challenges of Green Marketing Communication: Effective communication with environmentally conscious but skeptical consumers" and concluded, based on an experimental study, that repeated measurements of the specific group showed that the characteristics of the communication channel (verbal and nonverbal) are convincing for the environmental friendliness of products and nonverbal/visual communication for consumers with low environmental awareness. The analysis of verbal and nonverbal communication revealed a combination that offers a promising framework for effective green marketing communication. [Cheryan & Jakoub \(2012\)](#) concluded in a study entitled "Green Marketing: A Study of Consumer Attitudes Towards Environmentally Friendly Products" concluded that most consumers still lack green knowledge and that, due to low awareness of green products, companies are still not pushing for the further development of green products and are not particularly concerned with green products.

[Marvi et al., \(2021\)](#) in a study titled "Barriers Affecting Green Purchase Intention: An Interpretive Structural Modeling Approach" concluded that demographic (income, low education, household dimension, and generation), cognitive/motivational (lack of knowledge and awareness of health and the environment), contextual (high price, lack of variety, lack of access, lack of achievement, advertising, lack of effective regulatory laws and regulations), cultural (individualism, myopia, and uncertainty), social (norms, reference groups, and

lack of social responsibility), and behavioral (nutritional patterns, eating habits, justification for non-green purchases, indifference, and inattention) variables are the most important barriers that manufacturers and suppliers can pay attention to. [Asgharpour & Bashir Khodaparasti \(2023\)](#) in a study titled "Investigating the Effect of Empathy and Pessimism on Green Purchase Intention with the Mediating Role of Consumer Moral Beliefs: Considering Environmental Considerations", found that empathy has a positive and significant effect on purchase beliefs and purchase intention. Also, purchase beliefs have a positive and significant effect on purchase intention. Pessimism has a negative and significant effect on moral beliefs and purchase intention, and the mediating role of moral beliefs in the relationship between empathy and pessimism with purchase intention has been confirmed.

Today, green marketing communications play an important role in environmentally friendly consumers' decision-making regarding the use or non-use of companies' products and services. Green marketing communications help consumers by educating them about environmental problems. It also works effectively on how to address the problem and suggest consumers to participate in environmental protection. On the other hand, studies show that there is a deep gap between consumers' attitudes and their actual purchasing behavior, and their positive attitude towards green products will not always lead to purchasing the product; because appropriate awareness and training about the benefits and advantages of using green products are not provided by many companies and there is practically little information in this field. In addition, according to the researchers of this study, no case was found regarding the relationship between green marketing communications, green sports product purchasing behavior, and consumer attitudes in the field of sports equipment and supplies. Therefore, this study has tried to fill this research gap and for this purpose, by comprehensively examining the

theoretical foundations and considering emerging factors in the field of green marketing communications and green purchasing behavior, a set of factors that are involved in the creation and development of green marketing communications both at the organizational level and from the consumers' perspective and that can have consequences for sports product manufacturing

companies in terms of their impact on purchasing behavior have been examined in the form of a conceptual model. The components and indicators under study, which were localized from the study of research history and field surveys, are presented in the form of a conceptual research model as shown in Figure (1).



Figure 1. Conceptual research model based on researchers' studies

## 2. Methodology

The present study is applied in terms of its purpose and descriptive-survey in terms of its nature, considering the characteristics of the statistical population. Also, the present study is in the category of correlational research in terms of its investigation of the relationships between variables. In the present study, consumers of sports equipment and supplies were investigated. Given the unlimited number of customers and the lack of access to accurate statistics of the members of the community, the method of calculating the sample size in the case of an unlimited population was used, and through the available sampling method and in cooperation with the sellers of sports equipment and supplies in Tehran in the first half of 2024, 384 people were selected as the research sample based on the Morgan table. In this study, a questionnaire was used to collect data. In this study, in order to measure the model and test the research hypotheses, given the non-normal distribution of all variables,

the partial least squares method was used with the help of SmartPLS3 software. The questionnaire of the present study consisted of two main demographic sections (gender, age, education, marital status, and sports history) and specific questions. In the specific questions section; a 5-point Likert scale (very high, high, medium, low, and very low) was used. Considering the study of previous research and their localization, the elements of green marketing communications of companies were determined, including the level of education, product promotion, pricing, and advertising. The data required for this study were collected through the questionnaires; Van Westendorp (1976) pricing, Correia et al., (2023) education level, promotion and advertising Haghghat (2013), behavioral intention to buy Kim (2008), and Mustafa et al., (2007) consumer attitude, which had been confirmed in the history of previous research. Therefore, the questionnaires had

the necessary validity, but in order to be completely sure of determining the validity of the questionnaires, 5 university professors (5 associate professors each) with marketing expertise were consulted and in an initial test, they reviewed the questionnaire in terms of content and made suggestions for better clarification of some questions. After summarizing the opinions, the final research questionnaire was prepared. Also, to examine the validity of the questionnaire;

convergent validity tests (examination of the average variance extracted or AVE and composite reliability or CR) and divergent validity tests (examination of the single-pair test) were used, and to examine the reliability of the questionnaire; Cronbach's alpha coefficient and composite reliability tests were used. Finally, to evaluate the conceptual model of the research, structural equation modeling with SmartPLS3 software was used.

### 3. Findings of the Research

The descriptive results of the study in Table (1) show the demographic characteristics of the respondents.

**Table 1.** Demographic characteristics

Demographic characteristic	Categories	Frequency	Percent
Gender	female	239	<b>62.2</b>
	male	145	<b>37.8</b>
Age	Less than 25 years old	38	<b>9.9</b>
	Between 26 and 35 years old	162	<b>42.2</b>
	Between 36 and 45 years old	121	<b>31.5</b>
	Between 46 and 55 years old	44	<b>11.5</b>
	More than 55 years old	19	<b>4.9</b>
Education	Less than diploma	29	<b>7.6</b>
	Associate degree	32	<b>8.3</b>
	Bachelor's degree	124	<b>32.3</b>
	Postgraduate Degree and above	199	<b>51.8</b>
Marital status	Single	127	<b>33.1</b>
	Married	257	<b>66.9</b>
Sports history	Less than 5 years old	131	<b>34.1</b>
	Between 5 and 10 years old	149	<b>38.9</b>
	Between 11 and 20 years old	83	<b>21.6</b>
	More than 20 years old	21	<b>5.4</b>

### Measuring Construct Validity, Convergent Validity, and Reliability

Before the conceptual model of the research can be reviewed, the validity and reliability of the questionnaire must first be ensured. In structural equation modeling, the evaluation of the fit of the measurement model is based on several criteria, including construct validity, divergent validity, convergent validity, and reliability. To analyze the internal structure of the questionnaire and identify

the factors that make up each construct (construct validity), a confirmatory factor analysis was therefore performed. In addition to construct validity, convergent validity and reliability were examined, the results of which can be seen in Table (2). Divergent validity was also examined, the results of which are presented in Table (3).

**Table 2.** Results of construct validity (confirmatory factor analysis), convergent validity, and reliability

Hidden variable	Manifest variable	Factor load	Average variance extracted	Composite reliability	Cronbach's alphas
Green marketing communications	Education level	0.941	0.866	0.963	<b>0.948</b>
	Product promotion	0.925			
	Pricing	0.929			
	Advertisement	0.926			
Consumer attitude	N1	0.719	0.578	0.916	<b>0.895</b>
	N2	0.744			
	N3	0.791			
	N4	0.720			
	N5	0.736			
	N6	0.821			
	N7	0.737			
Green purchasing behavior	R1	0.720	0.546	0.894	<b>0.861</b>
	R2	0.811			
	R3	0.761			
	R4	0.786			
	R5	0.754			
	R6	0.738			
	R7	0.778			
	R8	0.730			

To verify the reliability of each individual item, Table (2) shows the factor loading of each of the observed variables on the relevant latent variables. The factor loading is a numerical value that determines the intensity of the relationship between a latent variable and the relevant manifest variable during the path analysis process. A value of 0.7 is considered acceptable for the factor loading. Therefore, a standard value of 0.7 was assumed for the factor loading in the present study. The results in Table (2) show that the factor loading values for all items are above the standard value of 0.7 and above the desired value. Based on these results, it can be concluded that the questions in the questionnaire are construct valid. In addition, there

are three necessary conditions for achieving convergent validity: 1. The composite reliability value is greater than 0.7; 2. The average value of the extracted variance is greater than 0.5; and 3. The composite reliability value is greater than the average value of the extracted variance. If the composite reliability value for each construct is greater than 0.7, this indicates adequate internal reliability for the measurement models, while a value of 0.6 indicates a lack of reliability. Finally, experts have set the standard value for the Cronbach's alpha coefficient at 0.7 (Davari & Rezazadeh, 2017). Thus, based on the results in Table 2 and the standard values for the proposed indicators, it can be concluded that construct

validity, convergent validity, and reliability exist for all variables, and overall, the study's measurement models are in a satisfactory and appropriate condition.

Additionally, to examine the discriminant validity of the measurement model, the Heterotrait-Monotrait (HTMT) ratio test was used. The HTMT index is a new method for calculating discriminant validity in partial least squares structural equation modeling (Hensler et al., 2015). Using Monte Carlo simulations, they introduced the HTMT index as an alternative to the Fornell and Larcker criterion.

Their simulation studies demonstrated the shortcomings of the Fornell and Larcker criterion and presented HTMT discriminant validity. HTMT discriminant validity is one of the main pillars of model evaluation and examines the relationship between two variables. If the values in the HTMT matrix are less than 0.9, it indicates that the discriminant validity of the appropriate tool is supported (Sarstedt et al., 2021). As shown in Table 3, the discriminant validity based on the HTMT index is acceptable.

**Table 3.** The test of Heterotrait-Monotrait Ratio (HTMT)

Hidden variable	Green marketing communications	Green purchasing behavior	Consumer attitude
Green marketing communications			
Green purchasing behavior	0.86		
Consumer attitude	0.88	0.89	

### Structural Model Analysis and Testing

Based on the results, the determination coefficients for the green purchasing behavior and consumer attitude in the research model were 0.866 and 0.794, respectively. In addition, the predictive relevance ( $Q^2$ ) index was calculated, which indicates the predictive power of the model. If  $Q^2$  is positive, it indicates a good predictive power of the model and suggests that the model is capable of predicting changes in the dependent variable. In this study, the  $Q^2$  values for green purchasing behavior and consumer attitude were 0.489 and 0.422,

The GOF index is the square root of the product of the average communality and the average determination coefficients. Values of 0.01, 0.25,

respectively, indicating that the model has predictive relevance. In the current study, the Standardized Root Mean Square Residual (SRMR) index was examined. If the value of this index is less than 0.1, it indicates a desirable fit. Some researchers also suggest a stricter value of 0.08, meaning that the SRMR index should be less than 0.08. In the current study, the value of this index was 0.052, which indicates a desirable model fit. Furthermore, to assess the overall model fit, the Goodness of Fit (GOF) index was used. and 0.36 are considered weak, moderate, and strong values for this index, respectively.

$$GOF = \sqrt{(\text{Communality}) * (R)}$$

**Table 4.** Overall fitting results

Goodness of fit index	Average coefficient of determination	Average of communality
0.73	0.83	<b>0.66</b>

According to Table 4, the obtained value for the GOF index is 0.73. Given the three criteria values (0.01 weak, 0.25 moderate, and 0.36 strong), the overall model fit is confirmed to be very good. Overall, based on the results of composite

reliability, average variance extracted, model determination coefficients, and the GOF index, it can be concluded that the drawn model in the path analysis domain possesses appropriate empirical-theoretical assumptions and a very good fit.

### Conceptual Model Testing

To test the research hypotheses, the structural equation modeling method was used. figures 2 and

3 illustrate the structural model in standardized estimation and significance coefficient states.

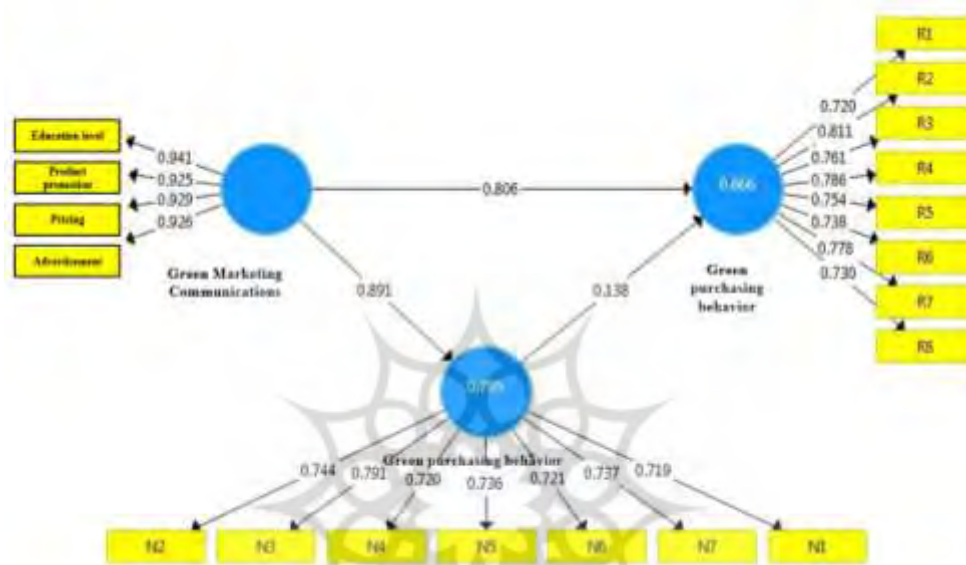


Figure 2. Path coefficients and factor loading of variables

The significance of path coefficients and factor loadings related to each latent variable was examined using the bootstrapping method, as shown in figure 2. In figure 2, the numbers on the paths and

the lines related to factor loadings are the t-statistics, and they are interpreted similar to the t-test; meaning for large sample sizes, values greater than  $\pm 1.96$  are significant at the 5% level.



Figure 3. The value of t statistic to check the significance of path coefficients and factor loading

The significance results of the path coefficients are also presented in Table 5. In this table, the path coefficient value, standard deviation, t-statistic value, and significance level for each path are

reported. As shown in figure 3, the t-statistic value for all paths is greater than 1.96, indicating that all obtained path coefficients are significant, and it can be stated that all research hypotheses are confirmed.

**Table 5.** Value of path coefficients and t statistic

Path	Path coefficient	Standard deviation	t statistic	Significant level	Result
Green Marketing Communications to Green Purchasing Behavior	0.806	0.047	17.324	0.001	confirmation
Green Marketing Communications to Consumer Attitude	0.891	0.011	80.559	0.004	confirmation
Consumer Attitude to Green Purchasing Behavior	0.138	0.048	2.876	0.001	confirmation
Green Marketing Communications to Consumer Attitude to Green Purchasing Behavior	0.123	0.042	2.897	0.004	confirmation

#### 4. Discussion and conclusion

Given the emergence of the green market in our society and increasing environmental concerns among consumers, marketers need to develop new strategies for green product development. This means the connection between environmental orientation and environmental marketing, which is an important strategy for developing environmental programs, should be visible in society. The most common beliefs about green products are that they are healthier and better protect the environment. Therefore, green consumption is the effort of individuals to protect themselves and their environment through purchasing decisions, indicating consumers' attention and concern for the environment as a social priority. This study investigated the impact of green marketing communications by sports product manufacturing companies and the importance of green consumer attitude on green purchasing behavior.

Based on the results, the path coefficient from green marketing communications to green purchasing behavior was 0.806 and was significant at the 0.001 error level. Therefore, it can be concluded that green marketing communications have a significant impact on green purchasing behavior. These findings are consistent with the studies of [Grebmer & Dieffenbach \(2020\)](#), who found that non-verbal visual communication can persuade consumers with low environmental

awareness, and [Al-Nuaimi & Al-Ghamdi \(2022\)](#), who stated that appropriate education supporting the environment affects environmentally-friendly behavior in various ways. These findings are consistent with [Teimourfamianasl & Khoddami \(2023\)](#), who believe that social and environmental factors affect Iranian consumers' green purchasing behavior. However, they are inconsistent with [Hansmann et al., \(2020\)](#), who stated that increased environmental awareness can lead to increased public awareness of individual environmental impacts but does not lead to the development of environmentally-friendly behaviors, and [Shittu \(2020\)](#), who stated that environmental awareness regarding sustainable living, due to issues such as increased costs and conflicting expectations of a sustainable lifestyle, cannot lead to environmentally-friendly behaviors. Environmental education, which includes knowledge exchange for creating values, attitudes, and skills, prepares individuals for green purchasing. Advertising is one of the elements of green marketing communications. Based on the present study's findings, there is a positive relationship between advertising and green purchasing intention, and previous studies' findings also show a strong and positive relationship between green advertising and consumer purchasing; meaning that consumers who have more information about green products are

more concerned about the environment, leading them to react more positively to green advertising (Batool & Iqbal, 2016). For consumers who find green products expensive, promoting an effective way to understand green products can persuade them to spend more on green products because it aligns with their attitudes and commitment to environmental protection.

According to the results, the path coefficient from green marketing communications to consumer attitude was 0.891 and was significant at the 0.004 error level. Therefore, it can be concluded that green marketing communications have a positive and significant impact on consumer attitude. These findings are consistent with Teimourfamianasl & Khoddami (2023), who believe that perceived individual factors have a greater impact on green purchasing behavior, and Qureshi et al., (2023), who concluded that environmental concern, environmental knowledge, and perceived green value positively and significantly affect attitude and subjective norms. Despite the increased awareness of consumers about environmental issues, there is still a gap between their attitude towards green products and their intention to purchase them. Also, based on the obtained results, it can be stated that the components of green marketing communications are very effective in changing consumer attitudes towards green sports products. One of the most important components of green marketing communications is education and raising awareness among consumers of sports products about the characteristics of green products to preserve the environment. Athletes attach great importance to their health and are likely to be more inclined than others to use products that are beneficial for both their health and the health of society and the environment. Therefore, sports product manufacturing companies should provide appropriate and timely education to familiarize consumers with green sports products and their importance and benefits. The advertising component can also be very important in terms of consumer attitudes and evaluations. In fact, through correct and targeted advertising, the target audience

becomes aware of a company's products and evaluates them. Accordingly, one of the essential ways to create a positive attitude towards green sports products is targeted advertising by sports product manufacturing companies. The purpose of targeted advertising is advertising that primarily focuses on professional athletes; because these individuals are often celebrities and famous people who can promote green sports products well to other segments of society who are not professional athletes and take the lead in this regard. Also, in the second step, companies can consider other segments of society in their advertising who are not professional athletes; because today, people have more concerns about the environment and are willing to buy environmentally friendly products. However, there is a deep gap between consumers' attitudes towards green products and their actual purchasing behavior, and the impacts and benefits of such products for environmental health should be clearly displayed in the advertising of sports companies.

Based on the results, the path coefficient from consumer attitude to green purchasing behavior was 0.138 and was significant at the 0.001 error level. Therefore, it can be concluded that consumer attitude has a positive and significant impact on green purchasing behavior. These findings are consistent with Qureshi et al., (2023), who concluded that attitude towards green products and subjective norms have a positive and significant relationship with green purchasing intention, and Asgharpour & Bashir Khodaparasti (2023), who believe that empathy has a positive and significant impact on purchasing beliefs and purchasing intention. Success in green sports product development and adoption requires understanding consumer attitudes towards these products and examining the factors influencing them. In fact, consumer attitudes influence their behavior, adoption, and development of green sports products. Therefore, there is a need for green marketing and a change in the behavior and attitudes of consumers of green sports products towards environmentally friendly lifestyles. Based on the obtained results, it

can be stated that although the impact of consumer attitudes on green sports product purchasing behavior is confirmed, its impact is not very high. Accordingly, it can be inferred that there is a significant difference between consumer attitudes and actual green sports product purchasing behavior. Therefore, it is essential for sports companies to conduct extensive research on current consumer attitudes and also to change their attitudes towards green products; because numerous studies have shown that attitude is one of the most important prerequisites for green purchasing intention and behavior.

As shown in Figure 3, the t-statistic value for all paths is greater than 1.96, indicating that all obtained path coefficients are significant; meaning the impact of green marketing communications on green purchasing behavior with the mediating variable of consumer attitude is confirmed. Overall, the results of the current study are consistent with Qureshi et al., (2023), Teimourfami et al. & Khoddami (2023), Asgharpour & Bashir Khodaparasti (2023), Grebmer & Dieffenbach (2020), Al-Nuaimi & Al-Ghamdi (2022), and Hansmann et al., (2020), but are inconsistent with Shittu (2020) and Cherian & Jacob (2012).

If sports companies can produce products that meet the environmental needs of consumers, customers will show more willingness towards these goods and services. Most consumers of sports products still lack "green" knowledge, and due to low awareness of green products, organizations still do not push for more development of green products and do not work much on green products. The current study presents a set of variables related to green marketing, and its results can be effective for both sports product consumers and sports companies.

Marketing is based on the premise that a business's communications can affect public perception of the business and its offerings. Both perceptions and attitudes are influential factors for purchasing intention and purchase evaluation. To make these factors positive, it is better to increase

customer knowledge and awareness of green products' performance. It is also essential that customer environmental concerns and considerations be addressed by companies through appropriate educational and cultural initiatives. This research showed that green marketing communications stimulate and maintain green purchasing behaviors, not only by stimulating green thinking but also by changing individuals' attitudes to change their lifestyle to support sustainable practices. Thus, green marketing communications affect consumer purchasing behavior by influencing customer relationship outcomes and quality and changing consumer attitudes towards purchasing. In the current study, by synthesizing the results, it is concluded that the impact of education level, product promotion, advertising, and pricing on sports product consumers is greater than the impact of consumer attitudes on their purchasing behavior, and these factors themselves have a potential impact on consumer attitudes. Also, the high perceived value of green sports products' environmental performance can lead to satisfaction and loyalty.

It is possible that consumers of sports products potentially follow individual or social attitudes that may reflect their purchasing decisions. Therefore, in the marketing strategy of companies, communications play an important role in increasing knowledge and awareness, and advertising is an effective tool that can meet the needs and desires of stakeholders who are concerned about the environment and health. On the other hand, people are realizing their role and responsibility towards the environment. Although this change does not happen quickly, it is happening.

It is recommended that, given that green marketing is a continuous process that requires constant input from suppliers, government laws and policies, and the public, it is essential that a business's green marketing strategy align with target markets and be able to achieve a sustainable competitive advantage. It is important to develop and implement strategies and policies related to

green products to guide retailers and customers towards green change and help them. Businesses should focus on developing a green product that has public demand and is also consistent with the company's main position. In addition, businesses should strive to present their efforts in a way that reduces the risks associated with costs. Finally, developing and implementing a simple green marketing strategy is not easy; because it is a relative concept that changes continuously over time. The results of this study can provide effective marketing strategies for promoting green sports products and better meeting the needs of consumers for specialists.

### 5. Conflict of Interest

There is no conflict of interest.

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Among the limitations of this research is its inability to be generalized to a larger population. Therefore, for further study, it is necessary to replicate the study with a wider and more geographically diverse population to understand the relationship between green marketing, consumer attitudes, and green purchasing behavior. Since the impact of green consumer knowledge and awareness was mentioned in all discussions and conclusions of this research, it is suggested that a study be conducted on the impact of green knowledge and awareness on green sports product purchasing.

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