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Modeling factors affecting the formation of environmental behaviors among managers and organizers of Iranian sports events

Modelización de los factores que influyen en la adopción de comportamientos respetuosos con el medio ambiente por parte de los gestores y organizadores de eventos deportivos iraníes

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Abstract

The aim of the present study was to investigate the mechanisms affecting the occurrence of pro-environmental behaviors among managers and organizers of sports events using the structural equation model. This applied research was conducted using a descriptive-survey method. The data collection tool was a researcher-made questionnaire including four dimensions of environmental awareness, perception of environmental consequences, intention to support green sports events, and actual pro-environmental behavior. The face and content validity of the tool was approved by experts, and its reliability was confirmed by Cronbach's alpha coefficient (0.83). The statistical population included managers and organizers of sports events in several provinces of the country, and ultimately 254 analyzable questionnaires were collected. The data was analyzed using SPSS version 19 and AMOS software. Pearson's correlation coefficient and structural equation modeling were used to test the hypotheses, and the bootstrap method was used to examine indirect effects. The results showed that the perception of environmental consequences has a direct and significant effect on the intention to support and the actual behavior of the environmental supporter. Also, the intention to support plays a significant mediating role in the relationship between the perception of consequences and actual behavior, while environmental awareness did not show a significant direct effect on actual behavior. In summary, strengthening the understanding of environmental consequences can pave the way for the formation of sustainable behaviors in the management of sports events.

Keywords

- Environment-friendly behavior
- Sports managers
- Perception of environmental effects
- Sports events

Palabras clave

- *Comportamiento respetuoso con el medio ambiente*
- *Gestores deportivos*
- *Percepción de los efectos medioambientales*
- *Eventos deportivos*

Resumen

El objetivo del presente estudio fue investigar los mecanismos que influyen en la aparición de comportamientos proambientales entre los gestores y organizadores de eventos deportivos mediante el uso del modelo de ecuaciones estructurales. Esta investigación aplicada se llevó a cabo utilizando un método descriptivo. La herramienta de recopilación de datos consistió en un cuestionario elaborado por los investigadores que incluía cuatro dimensiones: la conciencia medioambiental, la percepción de las consecuencias medioambientales, la intención de apoyar eventos deportivos ecológicos y el comportamiento proambiental real. La validez aparente y de contenido de la herramienta fue aprobada por expertos, y su fiabilidad se confirmó mediante el coeficiente alfa de Cronbach (0,83). La población estadística incluyó a gestores y organizadores de eventos deportivos en varias provincias del país, y finalmente se recopilaron 254 cuestionarios analizables. Los datos se analizaron utilizando SPSS versión 19 y el software AMOS. Se utilizaron el coeficiente de correlación de Pearson y el modelado de ecuaciones estructurales para comprobar las hipótesis, y se empleó el método bootstrap para examinar los efectos indirectos. Los resultados mostraron que la percepción de las consecuencias medioambientales tiene un efecto directo y significativo sobre la intención de apoyar y el comportamiento real de quienes defienden el medio ambiente. Además, la intención de apoyar desempeña un papel mediador significativo en la relación entre la percepción de las consecuencias y el comportamiento real, mientras que la conciencia medioambiental no mostró un efecto directo significativo sobre el comportamiento real. En resumen, reforzar la comprensión de las consecuencias medioambientales puede allanar el camino para la adopción de comportamientos sostenibles en la gestión de eventos deportivos.

Introduction

The environment consists of everything that surrounds an organism and includes natural elements and is constructed by humans as well. Like all other animal species that make up the ecosystem of the universe, humans always interact with their environment and partly change it. However, human beings are the only creatures that can have a significant impact on the ecosystem. Since ancient times, fire has affected animals and plants, farmers have cut down forest trees, and have domesticated certain animal species, and citizens have cultivated the first arid land. Earth is experiencing a big change today. Population's rapid growth, combined with the development of industrial societies dependent on fossil fuels, has greatly accelerated environmental demolition. Harmful human effects on the environment, such as climate change, can not only be prevented by changing policies, laws and regulations by governments and large companies, but also by changing the lifestyle by all individuals. Saying "I'm just one person, how much change can a person make.

In addition to the lack of empirical studies in this area, it is also necessary to pay attention to the cultural, social characteristics and management structures in Iran. Public attitudes towards environmental issues, the degree to which policymakers prioritize sustainable development, decision-making patterns in sports organizations and the level of social participation in environmental activities can influence the formation of pro-environmental behaviors in sports events. Therefore, examining these relationships in the Iranian social context can help to more accurately understand the mechanisms affecting environmental behaviors in sports event management and strengthen the sociological significance of this research.

Sport, like many other human activities, may have beneficial or harmful effects on the environment. Sport affects the environment in different ways: water pollution, noise pollution, optical pollution, consumption of renewable resources, consumption of natural resources, greenhouse gas emissions, ozone layer destruction, soil pollution, soil erosion, spilling garbage in the environment, consumption of paper and waste production from catering services (Jones 2010). It has been accepted that sport events can have many effects on the environment (Babiak and

Trendafilova 2017). In general, mega sport events can dramatically increase energy consumption and greenhouse gas emissions. In general, mega sport events dramatically increase energy consumption and greenhouse gas emissions. Sport events are held at different levels (from local competitions to massive events such as the Olympic Games) and the extent and impact of sport on the environment depends largely on the type of sport and the extent of the event (Mair 2018).

Sport and the environment are closely tied. The environment was added to the Olympic movement in 1996 as the third pillar along with sport and culture (Beyer 2016). The concept of Green Games was eventually announced by the International Olympic Committee (I0C) as a mandate and was considered a part of the Olympic Games since 2000 (Chan et al. 2016). In the 2000 Sydney Olympics, dubbed Green Games, it was attempted to address environmental issues in all aspects of the game, including design, construction, transportation, provision of catering, and residuum management. (Farahani and Sha'bani Moghadam 2016). Although sports organizations are not usually considered as the organizations which pollute environment, the performance of sports teams, spectators, managers and sport equipment manufacturers may have different effects on the environment. Some researchers have focused on how event organizers affect environmental conservation and have been focusing on issues such as reducing consumption, reuse, and recycling (Murphy 2010). Sports organizations today are developing strategies and campaigns to increase sustainable behaviors among sports enthusiasts (Kellison & Kim 2018; Pfahl 2017). Although the decision to involve in sport activities does not have much effect on the environment in the first place, its impact will be considerable when there are a lot of athletes practicing, competing, and traveling to participate in tournaments or providing sports equipment, and may have many consequences such as the production of carbon dioxide, waste generation, air pollution etc. (Kellison and Mondello 2012).

The type of individual's behavior can have a significant impact on the environment. Responsive behavior to the environment has a multidimensional structure and many factors such as environmental awareness, attitude, commitment, environmental belief, ethics, feelings, knowledge, global values, ecological world views, personality and social context affect it (Giuliani and Scopelliti 2016; Günther 2016; Winkel, Seagert & Evans 2016). Environmental awareness is recognized as the first key component of understanding the causes and effects of environmental issues (Kasper & Pfahl 2012). Environmental awareness is a comprehensive term that recognizes the destructive effects of human actions (and current technological and social developments) on the natural environment.

Environmental awareness is often synonymous with "environmental concern." Many studies have shown that environmental awareness/concern is a prerequisite for environment-friendly measures. When a person has enough awareness/concern, the next step is to decide to turn it into behavior, this decision requires support and action. Behavioral intention has a significant relationship with environment-friendly behaviors (Staats, Harland and Wilke 2021). People who decide to help in protecting the environment must realize that their actions can make a difference. McCarty and Shrum (2020) concluded in their research that those who purchase environment-friendly products believe that recycling is important and they adhere to other responsible behaviors toward environment as well. On the other hand, decision-makers can play a more effective role in persuading others to exhibit environmentally friendly behaviors.

The commitment of managers to environmental measures is considered one of the main indicators driving others into environmental protection, and this can affect their environmental responses (Lee and Rahey 2016). Some studies have shown that the commitment of managers to environmental measures is a prerequisite for a successful environmental strategy (Barnerjee 2020). by examining the relationship between the commitment of managers and some external and internal forces and its impact on environmental strategies of companies in different businesses, Barnerjee et al. (2019) found that the commitment of top managers had a positive effect on both orientation and environmental strategy. Zoecenthe's (2018) study by examining the environmental attitudes of small European hotels also showed that managers who have more environmental concerns have a greater moral motivation for environmental protection. In Iran, some research has been conducted on sport events that have focused more on social, economic, and political aspects of events, and little research has been devoted to sport and the environment. Among these few studies, less attention has been paid to the effect of the level of awareness, perception and behavior of individuals involved in sport on the environment. Considering the increasing importance of the environmental category in recent years around the world and given the extensive social effects of sport on the culture and the lack of scientific research in this field in the country, the need for further research on the environment and sport is evident. The present study intends to study the relationship between environmental awareness and perception and the

intention to support green sport events with actual environmentally friendly behavior in the country, so that it can provide a context for more attention to environmental issues in sport.

Accordingly, the present study was designed to explain the relationships between environmental awareness, perception of environmental consequences, intention to support green sports events, and actual pro-environmental behavior. In this framework, it was assumed that environmental awareness and perception of environmental consequences can affect the intention to support green sports events and actual pro-environmental behavior, and also that the intention to support green sports events plays a mediating role in the relationships between these variables and actual behavior.

Methodology

The present study is a descriptive survey-based study and has been conducted via field research method. By studying theoretical fundamentals of the research and interviewing the experts familiar with the two categories of sport and environment, a researcher-made questionnaire containing 40 questions and consisting of four factors of environmental awareness (8 question), environmental effects perception (15 Question), intention to support (8 questions), actual behavior (9 questions) was prepared. The face and content validity of the questionnaire were confirmed by a survey of the faculty members related to the research topic.

In this study, the questionnaire consisted of four main dimensions: environmental awareness (8 questions), perception of environmental impacts (15 questions), intention to support green sporting events (8 questions), and actual environmentally friendly behavior (9 questions). The environmental awareness questions focused on the respondents' level of awareness of environmental issues and challenges related to sporting events. The perception of environmental impacts dimension assessed individuals' understanding of the environmental consequences of holding sporting events. The support intention dimension measured individuals' willingness to support holding green sporting events, and finally, the actual behavior dimension assessed the practical actions of managers and organizers to protect the environment. All items were arranged on a five-point Likert scale.

In order to determine reliability, the questionnaire was distributed among 13 managers. Finally, the reliability of the questionnaire was reported as 0.83 by using Cronbach's alpha. The statistical population of the study consisted of managers and organizers of sports events in the country.

Given the use of convenience sampling, generalization of the results to the entire population of sports event managers and organizers in the country should be done with caution. However, in order to increase analytical accuracy, the data were analyzed descriptively by province to allow for the identification of more general patterns. It is suggested that future research use probability sampling methods and comparative analyses between provinces or demographic groups.

Considering the extent of the country and impossibility of using random sampling method for distributing the questionnaire, as well as the financial and temporal constraints of the researchers, the samples were selected based on familiarity and ease of access to some provinces. Accordingly, questionnaires were distributed in Tehran, Alborz, Isfahan, East Azarbaijan, West Azarbaijan, Khuzestan, Khorasan Razavi, Kurdistan, Lorestan and Kermanshah. Finally, 254 questionnaires were returned.

Given the type of analysis used (structural equation modeling), a sample size of 254 individuals was considered appropriate for this type of analysis based on methodological recommendations. However, a priori statistical power analysis was not formally performed, and this can be considered a limitation of the study. Descriptive statistics (frequency, percentage, mean and standard deviation) and inferential statistics were used to describe the research data. Pearson's correlation coefficient and path analysis were used to test the hypotheses and analyze data. Statistical calculations were performed using AMOS and SPSS software (version 19).

Results

As outlined in Table 1, among the 254 returned questionnaires, 182 questionnaires were for men, and 72 questionnaires were for women.

Table 1. Descriptive Findings of the Research

Demographic features	Scale	Frequency	Percentage
Sex	Female	72	28.3
	Male	182	71.7
Marital status	Single	100	39.4
	Married	154	60.6
Education level	Diploma and associate degree	59	23.2
	Bachelor's degree	117	46.1
	Master's degree	59	23.2
	PhD	18	71.1

Table 2 shows mean and standard deviations of the variables under study in the research.

Table 2. Mean and standard deviations of the variables under study

Variable	Minimum	Maximum	Mean	Standard deviation
Environmental awareness	0	8	3.55	1.61
Perception of environmental impacts	22	75	52.13	9.86
Actual environment-friendly behavior	12	18	16.39	1.60
Intent to support green sports events	10	16	14.53	1.45

As it is shown in Table 2, the environmental awareness of the sample under study is in a range of 0 to 8, and the mean of the total sample is 3.55 with a standard deviation of 1.61, which, given the possibility of obtaining a maximum score of 8, These results indicate a low level of environmental awareness in the sample under study. Also, the variable mean of perceived level of environmental impacts in the sample under study was 52.13 with a standard deviation of 9.86. Also, the mean of actual environment-friendly behavior was 16/39 with a standard deviation of 1.60 and the mean of intention to support the green sport events was 14.53 with a standard deviation of 1.45.

In order to determine the relationship between the environmental awareness level and the level of perception of environmental impacts with the intention of supporting green sport events, the statistical analysis results are presented in Table 3.

Table 3. Results of Pearson correlation coefficient test to investigate the relationship between environmental awareness level and perception level of environmental impacts with the intention to support green sport events

Predictive variable	Correlation coefficient with intention to support	Level of significance
Environmental awareness	0.15	0.01
Perception of environmental impacts	0.39	0.001

The results of statistical analysis of the relationship between the environmental awareness level and the level of perception of environmental impacts with actual behavior are presented in Table 4.

Table 4. Pearson Correlation Coefficient test to investigate the relationship between environmental awareness level and perception level of environmental impacts with actual environment-friendly behavior.

Predictive variable	Correlation coefficient with actual behavior	Level of significance
Environmental awareness	0.14	0.02
Perception of environmental impacts	0.34	0.001

Structural equation methodology was used to test the proposed pattern of relationship between environmental awareness level and perception level of environmental impacts through mediation of intention to support green sport events and environment-friendly behavior (the proposed research model has a total of four variables where two variables serve as an independent variable, one as an associated variable and one as the mediator variable).

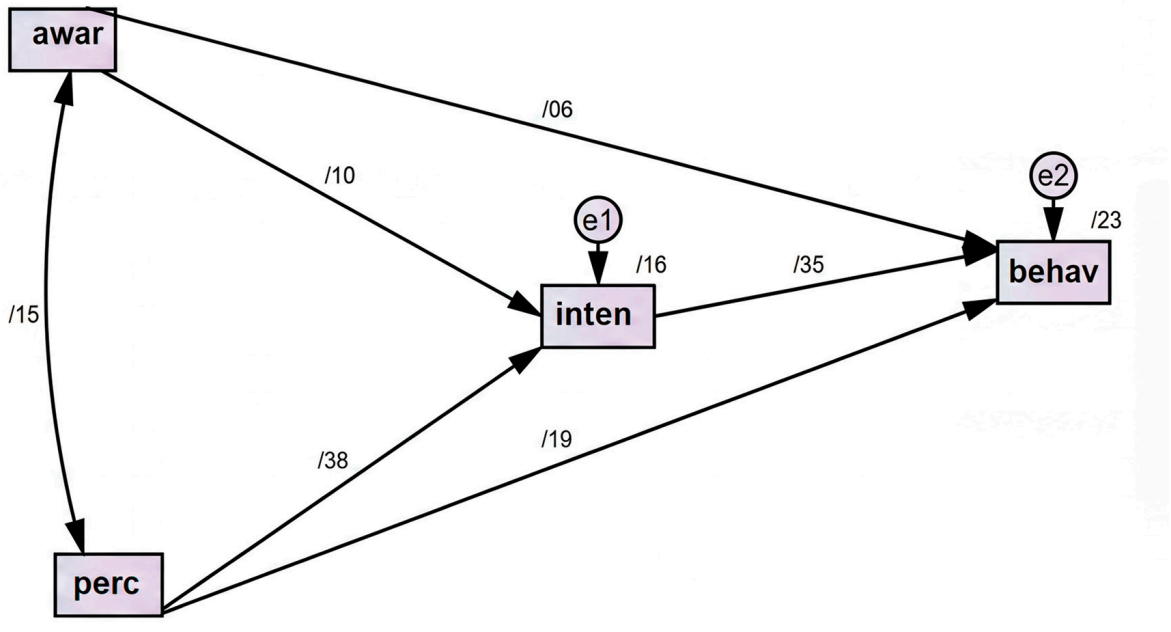
The Bootstrap method was used to test the indirect effects (intermediate). Before using the results, the fitness of the model should be approved. In order to determine the fit adequacy of the proposed model, fitness indexes of Chi-square, ratio of chi square on freedom degree ($\chi 2$ / df), Goodness-of-fit index, normed fit index, the comparative fit index, the Tucker-Lewis index and the root mean square error of approximation were used.

Table 5. Pearson Correlation Coefficient test to investigate the relationship between environmental awareness level and perception level of environmental impacts with actual environment-friendly behavior.

Fit indexes	X^2/DF	AGFI	GFI	RMSEA	NFI	TLI	CFI
Allowed limit	<3	>0.90	>0.90	≤0.08	>0.90	>0.90	>0.90
Obtained values	2.41	0.92	0.94	0.061	0.91	0.93	0.95

Table 5 indicates that all fit indices are within acceptable ranges. The chi-square/degrees of freedom ratio (2.41) is below 3. AGFI, GFI, NFI, TLI and CFI are above 0.90, and RMSEA (0.061) is below 0.08. Therefore, the proposed structural model demonstrates acceptable fit.

Figure 1. Path analysis of the direct and indirect effects of independent variables on the real environment-friendly behavior.



In Figure 1, the relationship between variables is presented in the standard estimation mode. In the model, based on the values of R2 obtained in the model, 16.3% of the dependent variable's changes (intention to support green sport events) are derived from the awareness and perception variables. Also, the three exogenous variables of the conceptual model have been able to predict 23 percent of the total variation in the actual environment-friendly behavior variable.

The results of the direct and indirect impacts of the environmental awareness effectiveness pattern and perception of the environmental impact on the actual environment-friendly behavior are presented in Table 6, considering the role of mediator in the intention to support green sport events.

Table 6. Estimation of direct and indirect effects of the awareness and perception variables on actual behavior with the mediating role of support intention.

Hypothesis	Relationship between research variables	Direct impact	Indirect impact	P-Value	results
H1	Awareness→ intention to support	0.100	-	0.087	rejected
H2	Perception→ intention to support	0.377	-	<0.001	accepted
H3	Awareness→ actual behavior	0.057	-	0.309	rejected
H4	Perception→ actual behavior	0.194	-	<0.001	accepted
H5	Perception→ intention to help—actual behvior	-	0.133	0.001	accepted
H6	Awareness-intention to help→ actual behavior	-	0.035	0.060	rejected

As the information in Table 6 shows, in reviewing direct effect, the perceived environmental impact has a positive and direct effect on the intention to support green sport events (b =377, p< 0/001). Also, the coefficients of direct effect of perception on environmental impacts have positive and direct effect on environment-friendly behavior (b = 7, p = 0/001). Therefore, the respective hypothesis is accepted at the level of 0.05 and it can be concluded that presence of significant direct relationships is due to the direct effect between the mentioned variables. In two other path coefficients, considering the observed level of significance (H1 and H3), the hypothesis of the existence of the relationship between variables is rejected.

An underlying assumption of the present proposed model was existence of a non-direct path that was investigated using the Bootstrap method. As shown in Table 6, the results of Bootstrap for the in-

direct path of environmental awareness and actual environment-friendly behavior with mediating to support the green sport events are not significant at the level of 0.05 (p = 0.06), which indicates a lack of the relationship between the independent and dependent variables and mediator variable mediating, so the hypothesis is rejected. Concerning the indirect path of perception of environmental influences and actual environment-friendly behavior by mediating the intention to support green sport events, Bootstrap results show a significant level below that of 0.001, indicating the significance of this indirect path in the 5% level of significance and therefore the hypothesis is accepted. This means that the perception of environmental impacts indirectly and through the intention to support green sport events influences the actual environment-friendly environment. Therefore, in the relationship between perception of environmental influences and the actual environment-friendly behavior, the variable intended to support the green sport events serves as a mediator variable, and it can be inferred that the extent of the impact of environmental perception on the actual environment-friendly behavior is due to the intention to support green sports events.

Discussion and Conclusion

The results of the research showed a significant relationship between environmental awareness and the intention to support green sport events. Macintosh et al. (2015) showed in their research that customers support environmental change if they are aware and well understand that this is a natural process. Given the fact that attitude emerges after conscious, changing attitudes must provide the opportunity and the right behavior by providing a context for raising awareness. Therefore, determining the level of awareness and measuring the attitudes of individuals is the first step in developing educational programs. The results of this study showed that environmental awareness can be effective in forming the intention to protect environmental issues in sport events.

The results of the research showed a significant relationship between environmental awareness and actual environment-friendly behavior. Many studies have emphasized the importance of environmental awareness in the field of sport (Ahmed 2018). The emphasis on raising environmental awareness and training people in the field of sport is evident in such programs as the FIFA's Green Goal and the Olympics Green Games Programs. Environmental awareness and perception of environmental issues are effective variables on environmental behavior. Increasing environmental awareness can reduce environmental issues and lead to responsible behaviors against the environment. However, the point to consider in terms of awareness and perception of environmental impacts is that knowing how human behavior influences the ecosystem does not necessarily directly lead to a change in behavior, although it is assumed that awareness and perception of environmental impacts encourage individuals to conduct environment-friendly behaviors.

The results of the research showed a significant relationship between the level of perception of environmental impacts and the intention to support green sport events.

The results of the research also showed a significant relationship between the level of perception of environmental impacts and the environment-friendly behavior in sports events. The results are consistent with the results of the MacIntosh, Epsolis and Walker 2013, which have found that customers expect sports facility providers to be responsible toward the environment. - Casper, Pfahl and Neumklow (2018) also reported that sports organizations use green games as a mechanism for engaging audiences and training sustainable behaviors in sport events.

The proposed model suggests that the level of environmental awareness, the level of perception of environmental influences and the intention to support green sport events can all predict 23% of the actual environment-friendly behavior. This is while the environmental awareness level and perception level of the environmental impacts can both predict 12% of actual behavioral changes, that is, without the presence of a mediating variable "intention to support green sport events," the ability to predict two other variables is less.

On the other hand, the results showed that in the relationship between the level of environmental awareness and the actual environment-friendly behavior, the mediator intending to support green sport events does not play the role of mediator. But there is a relationship between the level of perception of environmental impacts and the environmentally friendly behavior through the intention to support green sport events. That is, the mediating role of "the intention to support green sport events" is confirmed in the relationship between perceived environmental impacts and environmentally friendly behavior. This means that the high level of perception of the environmental impact of time leads to an actual environment-friendly behavior that aims to support high green sports events.

Based on the proposed model of research, environment-friendly behaviors of organizers and managers of sport events and their intention to support green sport events are largely influenced by their awareness and perception of environmental issues. In other words, environmental awareness on the one

hand, and environmental perception on the other hand, affect the environmentally friendly behaviors of organizers and managers. Environmental conservation requires changing the attitudes and behaviors of individuals, and fortunately the green attitude can be contagious (Beer 2016). Grant (2018) in his research showed that people's tendency to protect the environment is increasing, and factors such as distributing the news of environmental pollution, global warming, waste disposal problems, ozone depletion, food contamination and The result of increasing community knowledge of environmental issues has increased concern and sensitivity in the population, and makes it necessary to continuously evaluate products based on green standards.

Finally, due to the role of each of the variables studied in explaining the environmentally friendly behaviors of sport event's organizers and managers, the importance of understanding the environmental impacts and the intention to support green events in forming environmental behaviors is more evident. As mentioned earlier, an important variable such as the understanding environmental impacts in the emergence of environment-friendly behavior has a sustained relevance with the intention of supporting green sport events.

In order to preserve the environment in the sports industry, it is necessary that all managers, organizers and stakeholders' understanding of the environmental issues increase and they are committed to take action in this field. Therefore, in policy-making and major planning related to sport events, it is necessary to seriously promote the perception of environmental impacts and support the green holding of sport events along with other variables that affect environmental behaviors.

One of the limitations of this study was the use of non-random sampling due to time, financial, and geographical constraints; therefore, generalization of the results to the entire community of sports event managers should be done with caution. It is suggested that future research should increase the explanatory power and external validity of the findings by utilizing probability sampling methods.

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