



# OPEN How sports event scenarios shape urban image and influence audience conative tendency

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This study investigates how large-scale sports events influence urban image construction and audience behavioral responses through the logical chain of “scene cognition–emotional identification–conative tendency.” Drawing on empirical data from the 2025 Wuxi Marathon (valid sample  $N = 438$ ), the event scenario is conceptualized across four dimensions: role participation, environmental perception, activity evaluation, and cultural identification. Integrating the cognition–affection–conation (C–A–C) model, a research framework was constructed that incorporates emotional mediation and motivational moderation. Results from structural equation modeling indicate that: (1) scene cognition significantly enhances both event-related and city-related emotional identification, though the magnitude of effects varies across dimensions; (2) emotional identification mediates the relationship between scene cognition and conative tendency, with city-related emotional identification exerting the strongest effect; (3) participation motivation positively moderates the link between scene cognition and conative tendency. Theoretically, this research extends the applicability of scene theory to the study of sports events and advances the use of the C–A–C model; practically, it offers managerial implications for event organizers and urban policymakers in scenario construction, brand building, and audience cultivation.

**Keywords** Sports events, Scene construction, Emotional identification, Urban image, Conative tendency

As a global cultural phenomenon that embodies both regional attributes and social functions, sports events have long transcended the realm of competition, evolving into a multifaceted medium that integrates cultural communication, public interaction, and social mobilization<sup>1</sup>. It is deeply embedded in urban spaces and citizens’ everyday practices, triggering the co-construction of material space, the interconnection of symbolic space, and the reshaping of social space, thereby becoming a critical driving force in shaping urban image and fostering collective identity<sup>2</sup>. Anchored in established competitive regulations and sedimented historical conventions, sports events, by virtue of their pronounced spatio-temporal concentration, engender profound and multi-dimensional disruptions across the social, cultural, ecological, economic, and political subsystems of the city. Within the domain of urban studies, they are therefore conceptualized as hallmark or extraordinary events that transcend routine urban processes<sup>3</sup>. In conjunction with religious rituals, festive occasions, and cultural performances, they are conceptualized as derivative typologies within the broader spectrum of leisure and tourism practices<sup>4</sup>.

Early studies on the interaction between sports events and cities primarily focused on event structures and their processual characteristics, with particular attention to case narratives of urban events<sup>5</sup>, legacy effect assessment<sup>6</sup>, spatial concentration and crowd effects, and the cultural experiences embodied in the event<sup>7</sup>. At this stage, research predominantly relies on qualitative approaches, focusing on elucidating the socio-cultural meanings embedded in sports events as urban events<sup>8</sup>. Since the mid-twentieth century, along with market expansion, the economic value of sports events has grown exponentially within urban contexts. This has given rise to a research trajectory centered on “industrial behavior.” Relevant research has also expanded to the structure of industrial actors<sup>9</sup>, market supply adjustment<sup>10</sup>, corporate sponsorship and marketing strategies, and domains such as investment and operational efficiency<sup>11</sup>. It further extends to industrial integration and economic value assessment, generally relying on economic data and representative event cases, with an emphasis on the quantifiable and measurable economic contributions of sports events within the urban industrial system.

With the advancement of media technologies, research on the interaction between sports events and cities has once again shifted, extending its focus to the domain of online sports consumption, encompassing the expansion of sports boundaries through social networks, the technological extension of virtual event experiences<sup>12</sup>, and their influence on consumption motivation and re-participation intentions. During this period, scholarship has

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to some extent revealed new consumption patterns of sports events under digitalized contexts<sup>13</sup>; however, it has largely remained at the level of descriptive analyses of consumer behavior, lacking systematic generalization and theoretical elaboration of the psychological dynamics underlying spectatorship and re-participation intentions, and has yet to establish an integrated analytical framework.

The continuous advancement of mediatization has further amplified the cross-regional dissemination capacity and public visibility of sports events, thereby accentuating their role in urban branding and cultural communication. Sports events not only reflect a city's spirit and cultural character through competitive narratives and value systems, but also leverage technologies such as new media, immersive broadcasting, and augmented reality to enhance their visualized, contextualized, and socialized features. This process enables the public to generate affective experiences and cultural identification connected to the city during event perception. Against this backdrop, research perspectives have shifted from macroeconomic and industrial logics toward a scenario-based experiential path centered on scene perception, exploring audiences' and participants' emotional tendencies<sup>14</sup>, immersive experiences<sup>15</sup>, and the integrative value of sports events and tourism.

Existing research indicates that sports events, through their deep embedding in urban spaces and social happenings, play a significant role in generating social value, driving economic development, guiding consumer behavior, and constructing brand image. However, in terms of variable selection, many prior studies have remained confined to single-dimensional analyses of scenario elements (e.g., environmental perception or event content)<sup>16</sup> or one-dimensional measurements of emotional responses (e.g., event satisfaction or brand attitude)<sup>14</sup>. They lack an integrated framework that incorporates multiple actors, spatial environments, social interactions, and cultural symbols to systematically uncover the synergistic relationships among the diverse elements of sports event scenarios. With respect to underlying mechanisms, although the mediating role of emotional experience has received widespread scholarly attention—further differentiated into positive emotions, negative emotions, and awe—insufficient focus has been placed on the transfer and transformation of emotional identification. Moreover, research integrating cognitive and affective responses into multi-path models remains underdeveloped. To address these gaps, this study introduces the four-dimensional elements of scene theory to construct scenario cognition of sports events, and adopts the cognition–affect–conation framework as the logical basis to establish a multidimensional analytical model encompassing scenario cognition, emotional identification, and conative tendency. Using the Wuxi Marathon as an empirical case, this study provides theoretical support and empirical evidence for scenario-based event design, urban image construction, and the enhancement of audience behavioral intentions in the context of local sports events.

## Theoretical integration and methodological design

### The cognition–affect–conation theory

Before exploring how sports event scenarios influence urban-level behavioral intentions through cognitive processing and affective identification, it is necessary to clarify the internal mechanisms underlying individual psychological responses. The Cognition–Affect–Conation (C–A–C) theory provides a systematic explanatory framework that elucidates the psychological transmission path from external stimuli to behavioral responses<sup>17</sup>. This theoretical lineage can be traced back to mid-twentieth-century research in cognitive psychology and advertising, when Lavidge and Steiner proposed the three-stage sequence of “cognition → affect → conation” in their hierarchy-of-effects model<sup>18</sup>. Since then, this model has been widely adopted in studies of consumer behavior, brand communication, and urban experience<sup>19</sup>.

From a psychological perspective, cognition, affect, and conation constitute the three fundamental stages of human mental processes. E. R. Hilgard summarized them as the “trilogy of mind”<sup>20</sup>, emphasizing both the sequential and interactive nature of these components. Building upon this foundation, C. Clegg further argued that when examining the behavior of individuals or groups within the objective world, researchers should not only probe internal psychological activities but also focus on the dynamic interactions among individuals, and between individuals and their constructed physical environments<sup>21</sup>. This integrative perspective enables the C–A–C framework to interpret how psychological processes emerge and externalize within more ecologically valid contexts.

Structurally, cognition involves the encoding, comprehension, storage, and processing of external information—including sensation, perception, memory, judgment, and decision-making. It answers the question of “what is it?”, representing the starting point for information input and meaning construction<sup>22</sup>. Affect, in turn, arises from cognitive appraisal and refers to evaluative, emotional, or psychological reactions toward perceived objects or events. It reflects value judgments, emotional states, and embodied responses, constituting the psychological layer after cognition<sup>23</sup>. Conation represents the transformation of psychological intention into behavioral tendency—the question of “what to do?”. It manifests as behavioral intention or actual behavior, such as re-participation, recommendation, or social dissemination<sup>24</sup>. Together, these three dimensions form a progressive sequence from perception to action, while simultaneously reinforcing one another through feedback loops to constitute a dynamic psychological cycle.

Accordingly, within the context of sports event scenarios, the C–A–C theory can be operationalized as a psychological transmission chain extending from external stimuli to urban behavioral intentions. The visual, spatial, and interactive elements of a sporting event first evoke individual perception and comprehension (cognitive stage); based on cognitive appraisal, individuals develop emotional responses and affective identification toward the event and the host city (affective stage); this affective identification then transforms into behavioral tendencies (conative stage), expressed as continued attention, social sharing, or active participation in urban activities. Through this theoretical pathway, the present study systematically explains how sports events foster urban image identification and diffusion via the psychological mechanism of “scene cognition–affective identification–behavioral intention”.

## Scene elements of sports events

The C–A–C framework provides the overarching causal chain for this study. To derive empirically testable cognitive inputs within this chain, it is essential to deconstruct the external cues embedded in the event scenario. Therefore, Scenario Theory is introduced to describe how contextual cues are affectively processed and subsequently transformed into stable preferences and behavioral intentions.

Scenario Theory originated in the United States and Canada, where it was first advanced by sociologist Terry N. Clark in his research on “Fiscal Austerity and Urban Innovation”. It has since evolved into an interdisciplinary analytical framework and has been widely applied in various countries, including Spain, France, Poland, South Korea, and China. Although the theory initially arose within the governance context of fiscal austerity and urban innovation, its validity lies not in the fiscal premise itself but in the universality of its conceptual logic. First, there exists a structural parallelism between the two domains. Fiscal scarcity corresponds to the attention scarcity and limited temporal window that characterize sports event organization. A marathon, for instance, must achieve maximum utility—being seen, being liked, and being chosen—within a short duration, mirroring the logic of priority allocation and optimization under conditions of scarcity. Second, the two domains share a comparable mechanism of action. Scenario Theory emphasizes the process of element orchestration → attraction formation → social connection, while in the event context this sequence manifests as situational configuration → experience generation → affective identification. Both processes rely on affective mediation, integrating situational cues into transferable preferences and identifications that subsequently spill over into behavioral tendencies. Hence, applying Scenario Theory to mass-participation and celebratory sports events is not a contextual mismatch but rather a cross-domain adaptation of theoretical propositions. This perspective helps explain how event organizers orchestrate limited temporal and spatial resources into emotionally resonant experiences that strengthen social bonds and sustain the construction of urban image.

In some applications of Scenario Theory, scholars have adopted “comfort objects” as analytical cues, developing checklist-based and evaluative approaches to operationalize contextual attributes<sup>25</sup>. In the present study, these “comfort objects” are regarded as a theoretical reference at the upper conceptual level, but the micro-level checklist or rating approach is not directly employed in the empirical model. Instead, this research focuses on the psychological mechanism and path estimation linking scene cognition (perceptual level) → affective identification (event/city level) → conative tendency (behavioral level). Accordingly, the four core elements of Scenario Theory are translated into four perceptual dimensions—role participation, environmental perception, activity evaluation, and cultural identification—which together constitute the latent constructs in the proposed structural equation model. This methodological choice is grounded in three considerations: (1) Hierarchical consistency: The perceptual dimensions operate at the same psychological level as the affective and conative variables, allowing for a coherent examination of the “cognition → affect → conation” mediation chain<sup>26</sup>. (2) Cross-situational comparability: The micro-level “checklists” of scenario attributes vary greatly across different cities or events due to local contextualization, making database construction unsuitable for inter-scenario comparison and potentially undermining measurement reliability and validity<sup>27</sup>. (3) Operational efficiency and external validity: The four-dimensional perceptual structure offers a parsimonious yet stable representation of overall “scene quality”, improving both questionnaire efficiency and the external validity of the SEM framework<sup>28</sup>.

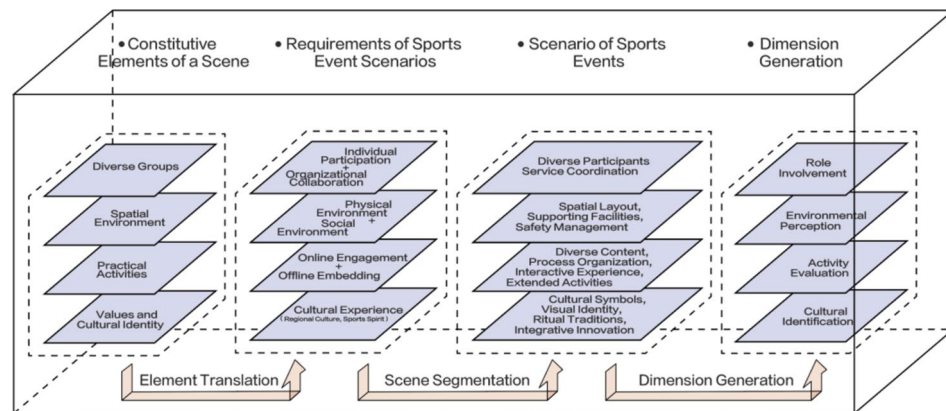
Accordingly, Scenario Theory offers three key insights for understanding the construction of sports event settings: (1) Systematic perspective: It provides a holistic framework for grasping the structural logic and organizational principles of event scenarios, offering a structural foundation for subsequent model construction and hypothesis development. (2) Relational integration: Scenario Theory emphasizes the integrity and interdependence among elements—highlighting the relational networks among people, environment, activities, and culture. It underlines the emotional resonance of individuals within leisure, consumption, and social context, as well as the spillover effects of such resonance on urban image formation; (3) Operational pathway: It decomposes “scenarios” into scientifically grounded perceptual dimensions, providing a feasible approach for variable extraction and evaluative system development<sup>29</sup>.

Building upon these insights, the present study establishes a dual-dimensional framework that integrates the objective structure and subjective cognition of Scenario Theory, thereby achieving a conceptual translation from “scene elements” to “event perception dimensions”. Specifically, the four core elements of Scenario Theory people, environment, activity, and culture are mapped onto four quantifiable dimensions within the context of sports events (as shown in Fig. 1): Role participation (encompassing diverse identities of participants and stakeholders), Environmental perception (including material facilities and social atmosphere), Activity evaluation (covering online interaction and offline engagement), and Cultural identification (reflecting local culture and sports spirit).

Role participation constitutes the core driving force of sports event scenarios<sup>30</sup>. Participants serve as the demand-side actors, whose experiential needs determine the value orientation of scenario construction. Organizational bodies represent the supply-side actors, including governmental departments, volunteers, security forces, and medical teams. Their multi-actor collaboration ensures efficient demand-supply matching, which forms the prerequisite for the smooth progression of events.

The spatial environment serves as a critical carrier in shaping event experiences<sup>31</sup>, consisting of both physical and social environments. The physical environment encompasses venue layout, facility configuration, and equipment utilization, whose rational planning, accessibility, and aesthetic quality directly affect service standards. The social environment, shaped by policies, culture, and regulations, fosters a co-constructive and shared atmosphere oriented toward event benefits.

Practical activities represent the core of scenario construction processes, generating participatory experiences through diversified content and interactive design. Online, algorithmic recommendations, comments, and sharing strengthen dissemination chains and community cohesion; offline, check-in activities and on-site



**Fig. 1.** Framework for scenario construction in large-scale sports events.

interactions enable the instant creation of situational experiences and social connections. The richness and efficiency of activities directly influence the quality of experience.

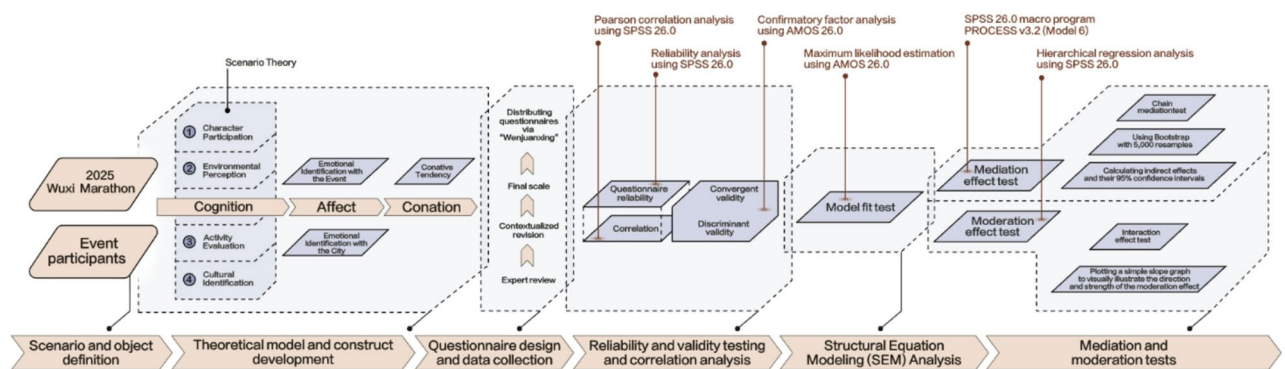
Cultural experience encompasses both local culture and sporting spirit. The integration of event elements with regional cultural resources enables cultural connotations to be externalized and disseminated through symbolic narratives.

### Research design and procedure

- (1) **Scenario and Sample Definition:** This study adopts the 2025 Wuxi Marathon as the empirical scenario and research context. A cross-sectional questionnaire survey was conducted among participants aged 18 years and above. Under conditions of anonymity and informed consent, a total of 438 valid responses were collected.
- (2) **Theoretical Model and Construct Development:** Within the macro-framework of the Cognition–Affect–Conation (C–A–C) theory, a conceptual path model was constructed. Based on Scenario Theory, the cognitive layer was operationalized into four dimensions—role participation, environmental perception, activity evaluation, and cultural identification—while event affective identification and urban affective identification were specified as mediating variables within the affective layer, ultimately leading to conative tendency as the behavioral outcome.
- (3) **Questionnaire Design and Data Collection:** All items were adapted from established scales and contextualized for the sports event setting through expert review and pilot testing. The instrument underwent semantic equivalence verification, item refinement, and structural adjustment, resulting in the finalized questionnaire using a 7-point Likert scale. Surveys were distributed during and immediately after the marathon through the Wenjuan Xing online platform. Quality control measures included setting a minimum response duration, using reverse-coded item consistency checks, and applying IP/device de-duplication to eliminate low-quality or repeated responses.
- (4) **Reliability, Validity, and Correlation Analysis:** Reliability and validity tests were performed to verify the psychometric soundness of all scales. Reliability was assessed using Cronbach's  $\alpha$  coefficients in SPSS 26.0, while validity was examined through Confirmatory Factor Analysis (CFA) in AMOS 26.0, evaluating standardized factor loadings, Composite Reliability (CR), and Average Variance Extracted (AVE) to test convergent and discriminant validity. Correlations among major variables were analyzed using Pearson's correlation in SPSS 26.0 to examine linear relationships.
- (5) **Structural Equation Modeling (SEM):** The proposed model was tested using AMOS 26.0 with the Maximum Likelihood Estimation (MLE) method. Based on theoretical assumptions, a structural model containing seven latent constructs—role participation, environmental perception, activity evaluation, cultural identification, event affective identification, urban affective identification, and conative tendency—was developed. The SEM analysis assessed both direct and indirect effects among variables to evaluate the overall model fit and theoretical validity.
- (6) **Mediation and Moderation Testing:** Mediating effects were tested using the PROCESS v3.2 macro (Model 6) in SPSS 26.0, with 5,000 bootstrap samples to compute indirect effects and 95% confidence intervals, examining the chain mediation effects of event and urban affective identification. The moderating role of participation motivation in the relationship between scene cognition and behavioral tendency was examined through hierarchical regression analysis in SPSS 26.0, supplemented with simple slope plots to visualize the interaction effects.

The overall research design and implementation procedure are illustrated in Fig. 2 (Research Design Flowchart).





**Fig. 2.** Research design flowchart.

## Scenario-based hypothesis deduction and model development for sports events

### Direct pathways of scenario cognition

A well-constructed scenario not only fosters immersive perceptual experiences but also enhances individuals' acceptance of products, information, and activities within the scenario by suppressing psychological defenses and resistance tendencies. In the context of sports events, participants typically form cognitive judgments of the event under the combined stimulation of multiple elements, and such cognitive evaluations serve as the prerequisite for the generation of emotions. At the same time, scenario marketing—owing to its implicit and indirect implantation characteristics—is more likely to permeate participants' emotional domains, allowing positive emotions to transfer from the scenario to specific objects within it<sup>32</sup>. Hence, cognition of sports event scenarios not only lays the foundation for emotional resonance, but differences in the cognition of various elements also determine the pathways and intensity of emotional generation. Consequently, emotional identification encompasses participants' overall affective evaluation of the event during both the viewing process and post-event experiences. Based on this, the following research hypotheses are proposed:

- H1: Scenario cognition has a positive effect on event emotional identification.
- H1a: Role participation has a positive effect on event emotional identification.
- H1b: Environmental perception has a positive effect on event emotional identification.
- H1c: Activity evaluation has a positive effect on event emotional identification.
- H1d: Cultural identification has a positive effect on event emotional identification.

City emotional identification refers to the psychological construction in which individuals, during their interactions with the city, internalize their cognitive evaluations of urban space, culture, and social relations into emotional attachment and a sense of belonging<sup>33</sup>. Within the urban scenarios of sports events, multidimensional scenario elements not only constitute the cognitive cue system through which participants perceive the overall context but also transmit meanings that enable them to generate positive emotions toward the host city while experiencing the event. Preference theory suggests that the comprehensibility and explorability of environmental structures significantly influence individuals' preference for and attachment to a place<sup>34</sup>. During an event, the systematic integration of elements such as urban landscape layout, transportation efficiency, and the quality of interactive spaces can construct a distinct and positive overall image of the city within a limited spatio-temporal scope. Empirical findings in tourism management and event studies further confirm that high-quality environmental experiences and a strong cultural atmosphere not only enhance the attractiveness of the event itself but also directly promote visitors' and residents' emotional identification with the city. Based on this, the following research hypotheses are proposed:

- H2: Scenario cognition has a significant positive effect on city emotional identification.
- H2a: Role participation has a significant positive effect on city emotional identification.
- H2b: Environmental perception has a significant positive effect on city emotional identification.
- H2c: Activity evaluation has a significant positive effect on city emotional identification.
- H2d: Cultural identification has a significant positive effect on city emotional identification.

### The cross-domain spillover mechanism of affective identification

The emotional spillover effect emphasizes that the emotional experiences individuals acquire in a specific context, event, or object are not confined to the original trigger but can migrate and extend to other related objects, contexts, or individuals, thereby realizing cross-domain extension of emotional influence<sup>35</sup>. Following this logic, event emotional identification is not only generated and reinforced within the event scenario itself but can also transcend the spatio-temporal boundaries of the event, projecting positive emotions and value

identifications onto the broader urban level, thus influencing the public's emotional evaluation and attitudinal construction of the city's overall image. Accordingly, the following research hypothesis is proposed:

H3: Event emotional identification has a significant positive effect on city emotional identification.

Emotional processing constitutes an essential component of the cognition–affection unit, referring to the process in which individuals encode and interpret situational information and subsequently generate corresponding emotional responses<sup>36</sup>. The cognition–affection–conation theory highlights that cognitive evaluations possess the function of emotional arousal, meaning that cognition serves as the prerequisite for emotion generation. Based on this, the present study introduces “emotional identification” as an observed variable within the affective unit, to examine the impact of positive emotional identification in sports event scenarios on conative tendency.

Emotional identification refers to the positive emotions and cognitive attitudes generated by participants toward the constitutive elements of sports event scenarios, essentially reflecting the alignment between scenario value and individual emotional needs. Existing theories suggest that the relationship between customers and brands fundamentally embodies the compatibility between product value and personal emotional needs<sup>37</sup>. By analogy, in specific service scenarios, scenario identification and emotional bonding function as mediating variables in the formation of scenario recognition and scenario attachment. Positive emotions elicited by favorable events not only enhance emotional arousal in the short term but also broaden cognitive scope and strengthen social connections, thereby fostering more enduring and stable behavioral motivations<sup>38</sup>.

Within the context of sports events, emotional identification encompasses not only identification with the event itself and the overall urban scenario on which it relies, but also recognition of scenario elements and their cultural connotations, social identification with other spectators or participants, and self-identification with one's own role and status. Participants' initial affection or emotional resonance with the event scenario often extends into sustained preferences for both the event and the host city. When individuals perceive and evaluate the multiple stimulus elements embedded in the event scenario, the resulting emotional identification drives their conative tendencies such as attention, information seeking, dissemination, and re-participation. Based on this logical deduction, the following hypotheses are proposed:

H4: Event emotional identification has a positive effect on conative tendency.

H5: City emotional identification has a positive effect on conative tendency.

### The mediating logic of emotional identification

Conative tendency refers to an individual's psychological willingness and behavioral readiness for future actions, formed under specific contexts based on cognitive and affective experiences. Existing findings in the field of tourism confirm that positive emotional responses generated during travel exert a certain spillover effect, helping to broaden individuals' immediate capacity for cognition and action<sup>39</sup>. Audience perceptions of scenario elements require the psychological channel of emotional identification to complete the processes of meaning internalization and motivation arousal. Event emotional identification integrates perceptions of people, environment, activities, and culture into attitudes toward the event, while city emotional identification further transfers emotions to the urban space, establishing cultural belonging and image recognition. These two forms of identification may serve as mediators independently, or they may form a sequential transmission from the event to the city, thereby driving and reinforcing the generation of conative tendency. Based on this logic, the following hypotheses are proposed:

H6: Event emotional identification mediates the relationship between scenario cognition and conative tendency.

H7: City emotional identification mediates the relationship between scenario cognition and conative tendency.

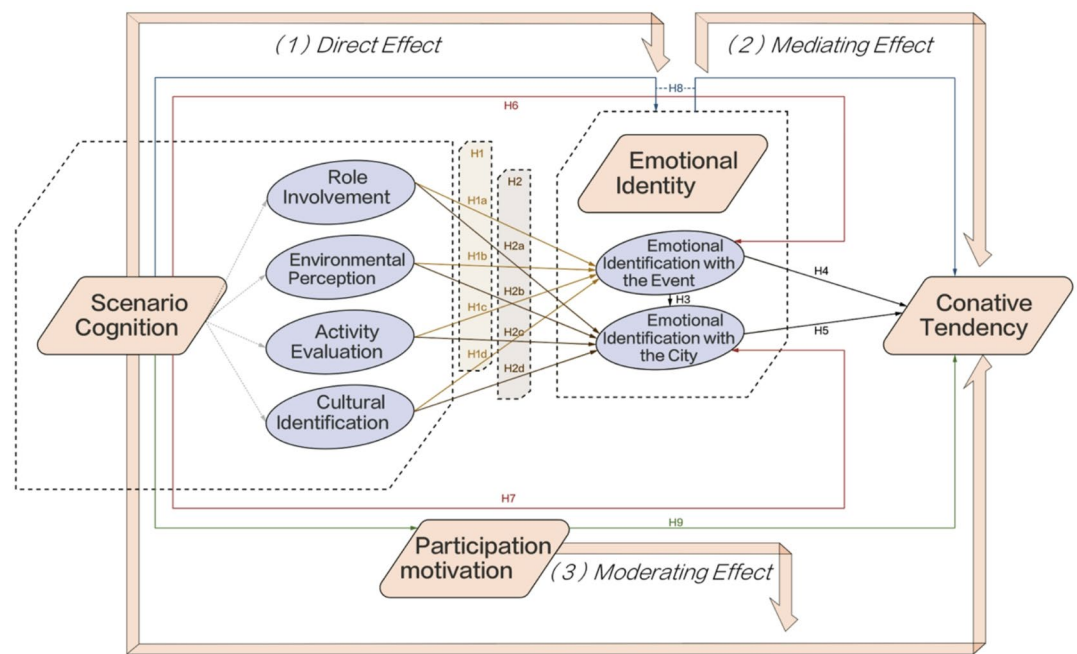
H8: Event emotional identification and city emotional identification jointly form a sequential mediation in the relationship between scenario cognition and conative tendency.

### The differential moderating role of participation motivation

Participation motivation refers to the intrinsic psychological needs and external situational incentives that drive individuals to choose and engage in specific activities<sup>40</sup>. In practice, event participants invariably possess certain motivations for attending. The reasons why individuals choose to participate in or watch an event determine their focal points of attention and the intensity of their perceptions. Participants motivated by leisure and entertainment focus more on event atmosphere, cultural experiences, and social interactions; those driven by professional competition place greater emphasis on organizational arrangements, process efficiency, and other functional elements. Research in tourism and consumer behavior has indicated a significant correlation between travel motivation and customer expectations<sup>41</sup>. Motivational differences not only influence customer satisfaction and loyalty but also exert differential effects between cognition formation and behavioral generation. Highly motivated groups demonstrate stronger behavioral intentions when faced with high-quality environmental cognition. Therefore, it can be inferred that sports event participants' motivations not only affect their attention to scenario elements but may also play a positive moderating role in the relationship between scenario cognition and conative tendency. Based on this, the following hypothesis is proposed:

H9: Participation motivation moderates the relationship between scenario cognition and conative tendency.

Integrating the nine hypothesized paths, the following research model is constructed (Fig. 3).



**Fig. 3.** Research model of the effect of scenario cognition on conative tendency in sports events.

## Research design and empirical analysis

### Scale and questionnaire design

The three dimensions of the cognition–affection–conation theory have well-established scale designs in marketing effectiveness research. In accordance with the characteristics of the research subjects and the objectives of this study, the relevant scale items were revised and adjusted to form the final questionnaire (Table 1). Specifically, the measurement of the cognitive dimension primarily draws on scenario theory, incorporating the system of sports event scenario elements constructed in the preceding section. In addition to collecting basic sociodemographic information, the questionnaire encompasses eight core constructs, each measured using a seven-point Likert scale. The detailed indicator system is presented as follows:

### Data sources and processing

This study targeted the overall participant population of the 2025 Wuxi Marathon, encompassing key stakeholders within the event ecosystem, including athletes, volunteers, medical staff, and security personnel. The respondents were drawn from diverse geographical regions. The inclusion of multiple participant roles was theoretically grounded in the study's framework, which conceptualizes “role participation” as a core component of scene cognition. A multi-role sample allows for a more comprehensive representation of how scenario elements interact and diverge within the cognition–affect–conation (C–A–C) transmission chain, thereby enhancing the external validity of the findings. As the research focuses on psychological mechanisms rather than profession-specific behaviors, statistical analyses were conducted at the overall participant level. The tested mechanism does not depend on specific identity categories, and thus the inclusion of diverse roles does not affect the measurement structure or model estimation<sup>52</sup>. Furthermore, the geographical diversity of respondents aligns with the organizational characteristics and tourism mobility patterns of large-scale urban marathons<sup>33</sup>. Such events exhibit strong destination attraction and cross-regional mobility, naturally involving residents, neighboring city participants, and interprovincial visitors. This diversity helps reduce selection bias and strengthens the robustness of the results. All respondents were aged 18 or above and participated voluntarily after providing written informed consent. The data were collected and processed anonymously. A total of 501 questionnaires were distributed and retrieved via the Wenjuan Xing online platform, of which 438 were valid, yielding an effective response rate of 87.42%. The study protocol was reviewed and approved by the Ethics Committee of the Medical School at Jiangnan University, China (Approval No. JNU202506RB039). All procedures were conducted in strict accordance with the Declaration of Helsinki, and informed consent was obtained from all participants and/or their legal guardians.

With respect to gender, males accounted for 53.20% and females for 46.80%, indicating a relatively balanced distribution. Age was highly concentrated in the 25–39 group (68.27%), with the 25–29 subgroup being the largest (42.47%). This pattern aligns with the *China Marathon Annual Development Report (2024)*, which identifies young and middle-aged adults (25–39) as the core demographic of marathon participants. Regarding education, 42.23% of respondents held a bachelor's degree or above, and 31.96% held an associate degree, reflecting a generally high level of educational attainment. This finding corresponds to prior studies in sports tourism indicating that participants typically possess higher education levels than the social average<sup>54</sup>. Occupationally, enterprise employees represented the largest share (34.93%), followed by workers/service

	Variable	Measurement items	Source of items
1	Role participation	I can clearly perceive my role positioning and participation responsibilities within the event process. The theme of this event is highly consistent with my interests or life experiences. I share a strong sense of value identification with other participants. I perceive smooth collaboration among different participating actors (e.g., volunteers, security staff, medical teams).	30,42
2	Environmental perception	I consider the spatial layout and flow design of the city during the event to be reasonable. I perceive that the public supporting facilities during the event (e.g., guidance signs, temporary restrooms, auxiliary equipment) are well provided. I believe that the city's security measures, emergency response, and order management during the event are effective. I perceive that the city demonstrated a high level of operational coordination (e.g., transportation, municipal services, universities) during the event, forming a supportive system.	43
3	Activity evaluation	I believe the arrangement of event activities is diverse and enriching. I perceive that the event process is compact and efficient, demonstrating the city's organizational and coordination capacity in sports activities. I believe that the interactive segments of the event (e.g., lottery participation, photography, social networking, awarding ceremonies) enhanced my identification with the city's openness and inclusiveness. I believe that the extended activities during the event (e.g., performances, exhibitions, and historical introductions) deepened my understanding of the city's culture and development.	45
4	Cultural identification	I can perceive the symbols and styles of local culture from the promotional content of the event (e.g., trailers, slogans, on-site explanations). I believe the visual system design used in the event (e.g., mascots, main visual styles, colors, cultural and creative products) demonstrates a distinct recognition of regional culture. I believe that the opening ceremony and cultural performances fully showcase the city's ritual traditions. I believe the event effectively integrates local cultural elements with modern forms of communication.	46
5	Emotional identification with the event	I feel emotional identification and respect for the spirit of collaboration demonstrated among different participant groups. The spatial atmosphere created at the event venue makes me feel safe and comfortable, enhancing my overall affection toward the event. The process arrangements and atmosphere of the event elevated my emotions, making me feel excited and emotionally resonant with the event experience. The cultural spirit and values embodied in the event (e.g., fairness, unity, perseverance) elicited strong emotional identification within me.	47
6	Emotional identification with the city	I feel emotional identification with the spirit and social atmosphere demonstrated by the city's residents and participants. The environmental quality displayed by the city during the event (e.g., cleanliness, order, visual appearance) enhanced my affection for the city. The organization and experiences of event-related activities made me feel the city's enthusiasm and vitality, strengthening my sense of belonging. The cultural character and spiritual connotations expressed by the city through the event evoked cultural resonance within me.	11
7	Conative tendency	I am willing to personally participate in or watch similar sports events on-site again. I intend to continuously follow the subsequent progress and updates of the event, including official accounts, media reports, or derivative content. I am willing to actively share my experience of the event through social media or face-to-face communication. After the event, I am interested in proactively searching for information about the host city and its cultural background related to the event.	50
8	Participation motivation	My participation in the event is primarily for gaining novel experiences and enjoyment. I participate in the event to achieve competitive results. I participate in the event because of my strong interest in the host city or as an opportunity to engage in tourism activities. I participate in the event to spend time with friends or family, or to make new acquaintances.	51

**Table 1.** Measurement items of the questionnaire.

industry practitioners (18.26%) and self-employed/freelancers (12.10%), suggesting that marathon participants primarily originate from groups with relatively stable employment. Income was concentrated between 5,001 and 8,000 yuan (42.47%) and below 5,000 yuan (26.26%), indicating the predominance of middle-income groups. In terms of sports event engagement, participants with a medium frequency of attendance in the past year accounted for the largest proportion (43.15%), followed by those with high frequency (26.71%), reflecting an overall high level of participation activity. Taken together, the sample characteristics in gender, age, education, occupation, and income demonstrate a strong alignment with the broader demographic profile of sports event participants, thereby ensuring representativeness. Detailed demographic information is presented in Table 2.

### Reliability, convergent validity, and discriminant validity of the questionnaire

To ensure the measurement quality of the scale, this study conducted reliability and validity tests for all latent variables (as shown in Table 3). The reliability analysis indicated that the Cronbach's  $\alpha$  values of all latent variables were greater than 0.80, and the composite reliability (CR) values all exceeded 0.83, demonstrating strong internal consistency of the scale. With respect to convergent validity, the standardized factor loadings of all measurement items were above 0.70 ( $p < 0.001$ ), and the average variance extracted (AVE) values of all latent variables were greater than 0.50, suggesting that the scale possesses satisfactory convergent validity. Regarding discriminant validity (see Table 4), the square root of the AVE for each latent variable was larger than its correlations with other latent variables, meeting the discriminant validity criterion proposed by Fornell and Larcker. This result confirms that the latent variables exhibit good discriminant validity.



Variable	Category	Frequency (N)	Percentage (%)	Cumulative Percentage (%)
Gender	Male	233	53.20	53.20
	Female	205	46.80	100
Age	18 <sup>a</sup> 24	74	16.89	16.89
	25 <sup>a</sup> 29	186	42.47	59.36
	30 <sup>a</sup> 39	113	25.80	85.16
	40 <sup>a</sup> 49	43	9.82	94.98
	50 and above	22	5.02	100
Education level	Below high school	38	8.68	8.68
	High school	75	17.12	25.80
	Associate degree	140	31.96	57.76
	Bachelor's degree	157	35.84	93.61
	Postgraduate and above	28	6.39	100
Occupation type	Student	45	10.27	10.27
	Research staff	26	5.94	16.21
	Enterprise employee	153	34.93	51.14
	Government / Public institution staff	49	11.19	62.33
	Self-employed / freelancer	53	12.10	74.43
	Worker / service industry practitioner	80	18.26	92.69
	Retired	3	0.68	93.38
	Others	29	6.62	100
Monthly income (CNY)	≤ 5,000	115	26.26	26.26
	5001–8000	186	42.47	68.72
	8001–12,000	111	25.34	94.06
	12,001–20,000	24	5.48	99.54
	≥ 20,001	2	0.46	100
Participation frequency in sports events (past year)	Low frequency (1–2 times/year)	54	12.33	12.33
	Medium frequency (3–5 times/year)	189	43.15	55.48
	Relatively high frequency (6–10 times/year)	117	26.71	82.19
	High frequency (11 times or above/year)	78	17.81	100
Total		438	100	100

**Table 2.** Basic information of the sample.

### Descriptive statistics and correlation analysis

To reveal the central tendency and interrelationships of the core variables, this study conducted analyses of mean (M), standard deviation (SD), and Pearson correlation coefficients (see Table 5). Based on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree), the mean values of all variables were above 4. This indicates that respondents generally held a highly positive attitude toward their perception of the event scenario, affective identification, and future conative tendencies. Among the four dimensions of scene cognition, Activity Evaluation (M = 4.64, SD = 1.35) and Cultural Identification (M = 4.56, SD = 1.44) received the highest scores, showing that most respondents provided the most favorable evaluations of event content and cultural connotations. Role Participation (M = 4.20, SD = 1.46) and Environmental Perception (M = 4.18, SD = 1.48) scored slightly lower but overall remained at a relatively high level.

The correlation analysis further demonstrates that all variables were significantly and positively correlated ( $p < 0.01$ ), with coefficients ranging from 0.320 to 0.766, covering the levels of low correlation (0.30–0.50), moderate correlation (0.50–0.70), and high correlation ( $> 0.70$ ). The correlation between overall scene cognition and behavioral intention was the strongest ( $r = 0.670$ ), suggesting that scene perception exerts a strong driving effect on behavioral intention. More specifically, the dimensions of scene cognition were moderately to highly correlated with both event emotional identification and urban emotional identification ( $r = 0.329$ – $0.549$ ), implying that event scene factors may play a potential role in shaping emotional identification. The correlation coefficient between event emotional identification and urban emotional identification ( $r = 0.581$ ) indicates that individuals' emotional attitudes toward the event extend to emotional attachment and sense of belonging to the host city. Additionally, the correlations between event emotional identification and behavioral intention ( $r = 0.549$ ), as well as between urban emotional identification and behavioral intention ( $r = 0.615$ ), were at moderate-to-high levels, providing statistical justification and empirical support for conceptualizing emotional identification as a mediating variable in the subsequent structural equation modeling.

### Path coefficients of the structural equation model

The overall model fit of the structural equation model is presented in Table 6. All indices met or exceeded commonly accepted thresholds, indicating that the proposed model fits the sample data well. The chi-square

Latent variable	measurement item	Standardized factor loading	CR	AVE	Cronbach's $\alpha$
Role participation	CP1	0.776	0.859	0.603	0.859
	CP2	0.750			
	CP3	0.811			
	CP4	0.769			
Environment perception	EP1	0.779	0.869	0.625	0.868
	EP2	0.745			
	EP3	0.820			
	EP4	0.816			
Activity evaluation	AE1	0.709	0.837	0.562	0.837
	AE2	0.795			
	AE3	0.746			
	AE4	0.747			
Cultural identification	CI1	0.790	0.864	0.614	0.864
	CI2	0.803			
	CI3	0.773			
	CI4	0.769			
Emotional identification with the event	EEI1	0.811	0.882	0.652	0.882
	EEI2	0.818			
	EEI3	0.807			
	EEI4	0.793			
Emotional identification with the city	CEI1	0.812	0.873	0.633	0.873
	CEI2	0.797			
	CEI3	0.799			
	CEI4	0.773			
Conative tendency	CT1	0.788	0.877	0.641	0.877
	CT2	0.810			
	CT3	0.791			
	CT4	0.812			
Participation motivation	PM1	0.843	0.897	0.684	0.896
	PM2	0.808			
	PM3	0.837			
	PM4	0.820			

**Table 3.** Results of reliability and convergent validity tests.

Latent variable	1	2	3	4	5	6	7	8
1. Role participation	0.777							
2. Environmental perception	0.487	0.791						
3. Activity evaluation	0.493	0.448	0.750					
4. Cultural identification	0.386	0.508	0.449	0.784				
5. Emotional identification with the event	0.604	0.460	0.586	0.593	0.807			
6. Emotional identification with the city	0.582	0.630	0.520	0.563	0.661	0.795		
7. Participation motivation	0.620	0.604	0.566	0.494	0.624	0.701	0.800	
8. Conative tendency	0.485	0.416	0.445	0.362	0.387	0.441	0.538	0.827

**Table 4.** Results of discriminant validity tests.

to degrees of freedom ratio ( $\chi^2/df=1.448$ ) was significantly below the recommended threshold of 3, suggesting good model parsimony. The standardized root mean square residual (SRMR=0.039) was less than 0.08, indicating acceptable residual levels. The goodness-of-fit index (GFI=0.929) adjusted goodness-of-fit index (AGFI=0.914), and comparative fit index (CFI=0.979) all exceeded 0.90, demonstrating excellent performance in both absolute and incremental fit. The root mean square error of approximation (RMSEA=0.032) was below 0.05, further confirming the model's strong fit.

The results of the path coefficient tests are presented in Table 7; Fig. 4. Structural Model of the Impact of Scene Cognition on Conative Tendency in Sports Events. Regarding the impact of scene cognition on event emotional identification, role participation, activity evaluation, and cultural identification all exerted significant

Variable	M	SD	1	1.1	1.2	1.3	1.4	2	3	4	5
1. Scenario cognition	4.39	1.06	1								
1.1 Role participation	4.20	1.46	0.736**	1							
1.2 Environmental perception	4.18	1.48	0.766**	0.419**	1						
1.3 Activity evaluation	4.64	1.35	0.726**	0.420**	0.384**	1					
1.4 Cultural Identification	4.56	1.44	0.729**	0.329**	0.442**	0.380**	1				
2. Emotional Identification with the event	4.44	1.54	0.655**	0.522**	0.403**	0.502**	0.516**	1			
3. Emotional Identification with the city	4.22	1.49	0.671**	0.500**	0.549**	0.444**	0.489**	0.581**	1		
4. Participation motivation	4.26	1.61	0.507**	0.425**	0.368**	0.388**	0.320**	0.345**	0.390**	1	
5. Conative tendency	4.49	1.48	0.670**	0.537**	0.529**	0.484**	0.432**	0.549**	0.615**	0.477**	1

**Table 5.** Descriptive statistics and correlation analysis. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

Fit index	$\chi^2/df$	SRMR	GFI	AGFI	CFI	RMSEA
Threshold	<3	<0.08	>0.9	>0.9	>0.9	<0.05
Observed value	1.448	0.039	0.929	0.914	0.979	0.032

**Table 6.** Results of model fit indices of the structural equation model.

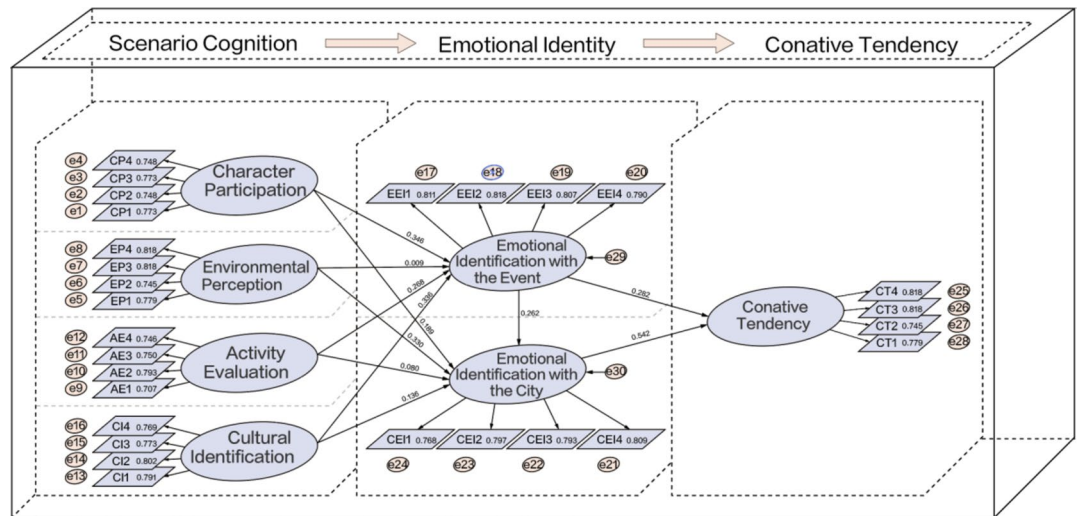
Path	$\beta$	S.E.	C.R.	P
Role participation → Emotional identification with the event	0.346	0.060	6.287	***
Environmental perception → Emotional identification with the event	0.009	0.058	0.166	0.868
Activity evaluation → Emotional identification with the event	0.268	0.071	4.846	***
Cultural identification → Emotional identification with the event	0.336	0.057	6.220	***
Role participation → Emotional identification with the city	0.189	0.063	3.352	***
Environmental perception → Emotional identification with the city	0.330	0.059	6.130	***
Activity evaluation → Emotional identification with the city	0.080	0.071	1.471	0.141
Cultural identification → Emotional identification with the city	0.136	0.059	2.470	*
Emotional identification with the event → Emotional identification with the city	0.262	0.068	3.927	***
Emotional identification with the event → Conative tendency	0.282	0.058	4.718	***
Emotional identification with the city → Conative tendency	0.542	0.061	8.434	***

**Table 7.** Results of path coefficient tests of the structural equation Model. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

positive effects, with role participation showing the strongest effect. This highlights that individuals' role engagement in the event serves as the core driving force for shaping event emotional identification. In contrast, environmental perception did not reach a significant level, suggesting that mere reliance on perceptions of the physical environment of the event is insufficient to effectively enhance event emotional identification.

In the path from scene cognition to urban emotional identification, both environmental perception and role participation had significant positive effects, with environmental perception exerting a stronger influence. This indicates that a high-quality event environment not only improves the event experience but also effectively fosters individuals' emotional attachment to the host city. Although cultural identification was significant, its effect was relatively weaker, implying that the cultural symbols embodied in the event are only indirectly related to urban emotional attachment. Activity evaluation did not achieve significance, suggesting that positive assessments of event activity quality may not directly translate into urban emotional identification.

With respect to the transmission paths of emotional identification, event emotional identification had significant positive effects on both urban emotional identification and behavioral intention. This implies that the positive emotions elicited in the event context can transcend the boundaries of the event itself, extending to the broader urban level. Urban emotional identification had the most significant effect on behavioral intention,



**Fig. 4.** Structural model of the impact of scene cognition on conative tendency in sports events.

indicating that individuals' emotional attachment to the city is the core driver of behavioral intentions such as re-participation, continued attention, information search, and word-of-mouth communication.

#### Chain mediation analysis of event emotional identification and urban emotional identification

Using PROCESS macro 3.2 in SPSS 26.0 (Model 6), the chain mediation effect of event emotional identification and urban emotional identification was tested. Gender, age, education level, occupation type, income level, and frequency of participation in sports events during the past year were included as control variables. Scene cognition was set as the independent variable, event emotional identification and urban emotional identification as mediators, and behavioral intention as the dependent variable. The results are presented in Tables 8 and 9.

First, from the regression equation results (Table 8), scene cognition has a significant positive effect on behavioral intention ( $\beta = 0.652, p < 0.001$ ), indicating that the higher the level of individual scene cognition, the stronger the likelihood of behavioral intention. Further analysis reveals that scene cognition significantly influences both event emotional identification ( $\beta = 0.649, p < 0.001$ ) and urban emotional identification ( $\beta = 0.510, p < 0.001$ ). Moreover, event emotional identification has a significant positive impact on urban emotional identification ( $\beta = 0.252, p < 0.001$ ). In the final model, scene cognition ( $\beta = 0.392, p < 0.001$ ), event emotional identification ( $\beta = 0.109, p < 0.05$ ), and urban emotional identification ( $\beta = 0.281, p < 0.001$ ) all exert significant positive effects on behavioral intention.

Second, from the chain mediation results (Table 9), the total effect of scene cognition on behavioral intention is 0.911 (95% CI = [0.813, 1.009]), comprising a direct effect of 0.548 (60.16%) and an indirect effect of 0.363 (39.84%), both significantly excluding zero. A further decomposition of the indirect effect reveals: Mediation Path 1: "Scene Cognition → Event Emotional Identification → Behavioral Intention" with an effect value of 0.099 (10.84%), significant, confirming that event emotional identification partially mediates the relationship (supporting H6). Mediation Path 2: "Scene Cognition → Urban Emotional Identification → Behavioral Intention" with an effect value of 0.200 (21.96%), significant, indicating that urban emotional identification plays a key mediating role (supporting H7). Mediation Path 3: "Scene Cognition → Event Emotional Identification → Urban Emotional Identification → Behavioral Intention" with an effect value of 0.064 (7.04%), also significant, demonstrating a chain mediation effect between event emotional identification and urban emotional identification (supporting H8).

In summary, scene cognition influences behavioral intention not only through a direct pathway but also via the single and chain mediation pathways of event and urban emotional identification. This finding provides statistical support for the "Cognition–Affect–Conation" (C–A–C) logic chain, verifying the mediating mechanism of emotional identification between event scenes and behavioral intention.

#### Moderating effect analysis of participation motivation

Using SPSS 26.0, hierarchical regression was employed to examine the moderating effect of participation motivation on the relationship between scenario cognition and conative tendency. Gender, age, education level, occupation type, income level, and frequency of sports event participation in the past year were included as control variables; scenario cognition was set as the independent variable, participation motivation as the moderator, and conative tendency as the dependent variable. The regression results are presented in Table 10.

In Model 1, only the control variables and scenario cognition were included; Model 2 added participation motivation on the basis of Model 1; Model 3 further introduced the interaction term between scenario cognition and participation motivation to test the moderating effect. The results show that in Model 3, the interaction term has a significant positive effect on conative tendency ( $\beta = 0.115, p < 0.01$ ), indicating that participation motivation



Outcome variable	Predictor variable	$\beta$	SE	t	95%CI	R	R <sup>2</sup>	F
Conative tendency	Scenario cognition	0.652***	0.050	18.214	[0.813,1.009]	0.688	0.473	55.114***
	Gender	-0.021	0.105	-0.605	[-0.269,0.143]			
	Age	0.061	0.051	1.718	[-0.013,0.188]			
	Education level	-0.047	0.050	-1.331	[-0.165,0.032]			
	Occupation type	0.012	0.028	0.334	[-0.046,0.065]			
	Monthly income (CNY)	-0.019	0.06	-0.541	[-0.151,0.086]			
	Participation frequency in sports events (past year)	0.131***	0.057	3.688	[0.098,0.323]			
Emotional identification with the event	Scenario cognition	0.649***	0.054	17.522	[0.833,1.044]	0.660	0.436	47.448***
	Gender	0.035	0.112	0.968	[-0.112,0.329]			
	Age	0.015	0.055	0.403	[-0.085,0.129]			
	Education level	0.004	0.053	0.118	[-0.099,0.111]			
	Occupation type	-0.011	0.030	-0.306	[-0.069,0.050]			
	Monthly income (CNY)	0.020	0.064	0.556	[-0.091,0.162]			
	Participation frequency in sports events (past year)	0.067	0.061	1.803	[-0.010,0.231]			
Emotional identification with the City	Scenario cognition	0.510***	0.065	11.047	[0.590,0.845]	0.699	0.489	51.344***
	Emotional identification with the event	0.252***	0.045	5.484	[0.157,0.333]			
	Gender	-0.017	0.104	-0.500	[-0.257,0.153]			
	Age	-0.028	0.051	-0.786	[-0.139,0.060]			
	Education level	-0.009	0.050	-0.260	[-0.110,0.084]			
	Occupation type	-0.033	0.028	-0.945	[-0.081,0.029]			
	Monthly income (CNY)	0.003	0.060	0.077	[-0.113,0.122]			
	Participation frequency in sports events (past year)	-0.034	0.057	-0.976	[-0.167,0.056]			
Conative tendency	Scenario cognition	0.392***	0.070	7.814	[0.410,0.686]	0.729	0.531	53.916***
	Emotional identification with the event	0.109*	0.044	2.390	[0.019,0.192]			
	Emotional identification with the city	0.281***	0.046	6.061	[0.188,0.369]			
	Gender	-0.023	0.099	-0.683	[-0.263,0.127]			
	Age	0.067	0.048	1.967	[0,0.189]			
	Education level	-0.046	0.047	-1.356	[-0.157,0.029]			
	Occupation type	0.023	0.027	0.690	[-0.034,0.071]			
	Monthly income (CNY)	-0.024	0.057	-0.704	[-0.152,0.072]			
	Participation frequency in sports events (past year)	0.129***	0.054	3.815	[0.100,0.314]			

**Table 8.** Regression Equations. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

Effect	Estimate	SE	95%IC	Relative effect (%)
Total effect: scene cognition → conative tendency	0.911	0.050	[0.813,1.009]	-
Direct effect: scene cognition → conative tendency	0.548	0.070	[0.410,0.686]	60.16%
Total indirect effect	0.363	0.059	[0.251,0.480]	39.84%
Indirect effect 1: scene cognition → event emotional identification → conative tendency	0.099	0.044	[0.012,0.185]	10.84%
Indirect effect 2: scene cognition → city emotional identification → conative tendency	0.200	0.041	[0.124,0.282]	21.96%
Indirect effect 3: scene cognition → event emotional identification → city emotional identification → conative tendency	0.064	0.019	[0.031,0.104]	7.04%

**Table 9.** Chain mediation test results of event emotional identification and city emotional identification. Effect values are unstandardized coefficients.

significantly enhances the effect of scenario cognition on conative tendency, thus supporting research hypothesis H9.

To more intuitively present the moderating effect, this study plotted the relationship between scenario cognition and conative tendency under different levels of participation motivation (Fig. 5). It can be observed that when participation motivation is higher, the positive effect of scenario cognition on conative tendency is stronger; whereas under low participation motivation, this effect is relatively weaker. In other words, participation motivation exerts an amplifying moderating effect between scenario cognition and conative tendency.

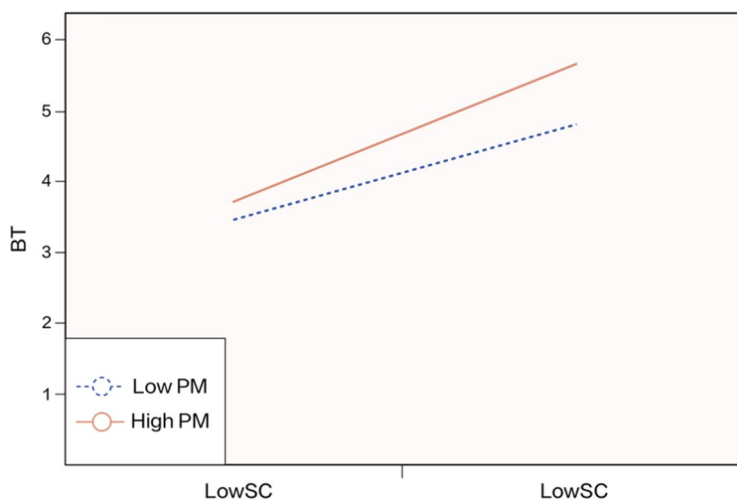
## Discussion

### The differential impact patterns of scenario cognition on emotional identification

Based on emotion appraisal theory, emotions can be regarded as the psychological outcomes generated when individuals process and cognitively evaluate surrounding environments and practical information<sup>55</sup>. In the

Variables	M1: conative tendency			M2: conative tendency			M3: conative tendency		
	$\beta$	SE	t	$\beta$	SE	t	$\beta$	SE	t
Gender	-0.021	0.105	-0.605	-0.011	0.103	-0.324	-0.006	0.102	-0.182
Age	0.061	0.051	1.718	0.069	0.050	1.953	0.066	0.049	1.911
Education level	-0.047	0.050	-1.331	-0.035	0.049	-1.013	-0.034	0.049	-0.986
Occupation type	0.012	0.028	0.334	0.002	0.028	0.050	-0.006	0.027	-0.161
Monthly income (CNY)	-0.019	0.060	-0.541	-0.027	0.059	-0.775	-0.026	0.058	-0.743
Participation frequency in sports events (past year)	0.131**	0.057	3.688	0.11**	0.057	3.108	0.100**	0.056	2.861
scenario cognition	0.652***	0.050	18.214	0.572***	0.056	14.289	0.556***	0.056	13.922
Participation motivation				0.168***	0.038	4.119	0.184***	0.037	4.536
Scenario cognition $\times$ participation motivation							0.115**	0.030	3.344
R <sup>2</sup>	0.473			0.493			0.506		
Adjusted R <sup>2</sup>	0.464			0.484			0.495		
F-value	55.114***			52.136***			48.686***		

**Table 10.** Results of the moderating effect test. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .



**Fig. 5.** Relationship between scenario cognition and conative tendency under different levels of participation motivation.

context of sports events, participants' emotional identification stems from their positive cognition and favorable evaluations of scenario elements such as role participation, environmental perception, activity evaluation, and cultural identification. The survey results indicate that respondents generally hold a positive attitude toward the Wuxi Marathon. However, the effects of different pathways on event emotional identification and city emotional identification demonstrate distinctive characteristics.

In the path influencing event emotional identification, role participation ( $\beta = 0.346$ ) and cultural identification ( $\beta = 0.336$ ) exhibited the most significant positive effects. Direct involvement in the event not only enhances participants' sense of immersion but also deepens identity recognition through the process of interactive narrative construction. This result validates the core proposition of situational marketing theory regarding role co-construction, namely that audiences are no longer passive recipients but co-creators of the event experience, and their level of engagement determines the depth of emotional attachment<sup>56</sup>. At the same time, the cultural implications embedded in the event, along with their resonance with local historical traditions, enable individuals to transcend the competition itself and achieve emotional belonging through cultural identification. This resonates with cultural embedding theory, indicating that cultural narratives can effectively activate audiences' value resonance<sup>57</sup>. Activity evaluation also shows a positive influence ( $\beta = 0.268$ ). Rational event design and smooth organization of activities enhance individual satisfaction and overall experience, thereby fostering the generation of positive emotions. In other words, immersive and situational experiences are more likely than mere physical environments to elicit emotional responses. In contrast, environmental perception did not demonstrate a significant effect on event emotional identification ( $\beta = 0.009$ ,  $p = 0.868$ ). A possible explanation lies in the fact that event venues, transportation order, and service support have already reached relatively high levels of standardization, diminishing the decisive role of environmental factors in shaping emotional identification. Put differently, when the basic environment generally meets expectations, individuals tend to focus their emotional evaluations on interactive experiences and cultural narratives instead.

In the path influencing city emotional identification, environmental perception exerted the strongest predictive effect ( $\beta = 0.330$ ,  $p < 0.001$ ), surpassing role participation and cultural identification. This result indicates that in the process of events spilling over into city image, the public's perception of the city's physical environment and social atmosphere serves as the primary condition for forming emotional attachment to the city. This finding is consistent with research on tourism destination image, which highlights that the material and social environment of a city are key variables shaping the overall emotional evaluations of residents and visitors. Activity evaluation, however, did not have a significant effect on city emotional identification ( $\beta = 0.080$ ,  $p = 0.141$ ). This may be because, although event activities can enhance the event experience, their impact range is largely confined to the stadium or event setting, making it difficult to generate lasting emotional projection in broader urban cognition. When event cultural symbols fail to deeply couple with the city's branding strategy, the emotional effect of activities themselves struggles to spill over into the overall city image.

### The impact path of emotional identification on conative transformation

The empirical results show that city emotional identification exerts the most significant effect on conative tendency ( $\beta = 0.542$ ), with a much stronger impact than event emotional identification ( $\beta = 0.282$ ). This finding reveals the fundamental logic in the mechanism through which sports events exert influence: while the event setting can trigger immediate emotional responses, its true transformative value lies in extending long-term conative intentions through city emotional identification.

In other words, an event as a temporary occurrence functions more as a situational trigger, whereas the city provides the ultimate locus of emotional attachment and behavioral orientation. From the perspective of the transformation path, the effect of event emotional identification is often constrained by the temporal boundaries of the event itself, rendering its emotional impact more instantaneous and short-lived. By contrast, city emotional identification embeds itself into individuals' daily lives in a more stable and enduring manner, thereby becoming the key mediator for conative tendency.

This finding aligns with destination brand identification theory, which suggests that long-term consumer behaviors and re-engagement intentions rely more on individuals' emotional commitment to the destination rather than on the transient emotional arousal of a single event<sup>58</sup>. Therefore, to achieve long-term influence, sports events must facilitate a transition from event identification to city identification.

### The moderating effect of participation motivation

Participation motivation exerts a significant positive moderating effect between scenario cognition and conative tendency ( $\beta = 0.115$ ). High-motivation groups demonstrate stronger willingness for re-engagement and dissemination under conditions of high-level scenario cognition, whereas low-motivation groups, even with positive cognition, show relatively limited conative transformation.

This indicates that motivation functions as a key amplifier in converting situational effects into behaviors. An individual's intrinsic drive determines both their sensitivity to situational information and their ability to transform it into action. High motivation enables the cultural values and interactive experiences of an event to be more easily converted into behavioral intentions<sup>70</sup>. Thus, while scenario construction provides the foundation, only in combination with motivational incentives can the effective transformation from immediate experience to long-term behavior be achieved.

## Conclusions, contributions, recommendations, and limitations

### Conclusion

The results indicate that scenario cognition exerts differentiated effects on emotional identification: role participation and cultural identification significantly drive emotional identification with the event, while environmental perception occupies a central position in shaping emotional identification with the city.

Emotional identification plays a pivotal role in conative tendency, with city emotional identification exerting a significantly stronger influence than event emotional identification, thereby confirming the logic of "the event as a means, the city as the end."

Chain mediation analysis further reveals the psychological transmission pathway of "scenario cognition → event emotional identification → city emotional identification → conative tendency," among which the mediating effect of city emotional identification is the most prominent.

Meanwhile, participation motivation has a significant positive moderating effect between scenario cognition and conative tendency, with high-motivation groups demonstrating stronger behavioral intentions under conditions of high-level scenario cognition.

Overall, this study uncovers the internal logic by which sports events stimulate emotional identification through scenario cognition and subsequently achieve conative tendencies via city identification and motivational mechanisms. This provides both theoretical support and empirical evidence for event scenario design and city brand building.

### Contributions

First, this study integrates scenario theory with the Cognition–Affect–Conation (C–A–C) theoretical model and proposes four-dimensional elements for sports event scenario construction. It expands the systematic analytical path of scenario cognition, affective identification, and conative tendency in sports event research. Compared with previous studies that focused only on a single physical or cultural dimension, this research theoretically bridges the logical chain between scenario symbolic communication and embodied emotional experience.

Second, most existing studies on sports events and cities focus on the direct influence of scenario cognition on audience behavior, while seldom delving into the underlying mediating and moderating mechanisms. This study, through empirical validation, finds that scenario cognition not only directly promotes conative tendency

but also shapes dual mediating paths via affective identification with the event and with the city, moderated positively by participation motivation. This conclusion provides empirical support for explaining how sports event scenarios influence behavioral transformation through emotional resonance and motivational differences and supplements the theoretical explanation and path for scenario-based event marketing and city brand building.

Third, prior research has mostly examined the impact of sports event scenarios on explicit behavioral outcomes (e.g., spending amount, participation frequency, repurchase rate), while rarely incorporating conative tendency as a core indicator. Conative tendency is not only the most direct and predictive psychological response within scenario experiences but also a prerequisite for actual behavioral transformation. By introducing conative tendency into the analytical framework, this study enriches the evaluation system of sports event scenario experiences and extends the applicability of the C–A–C theoretical model to sports events and city image research. This provides both a theoretical foundation and measurement reference for future exploration of conation transformation across various types of scenarios.

## Recommendations

Within the domain of sports events, event affective identification and urban affective identification jointly constitute the dual motivational drivers of audience conative tendencies. Distinct cognitive elements and their combinatory patterns exhibit differentiated mechanisms along the psychological transmission path. Specifically, the interaction between role participation and cultural identification significantly strengthens individuals' sense of belonging and symbolic recognition at the event level, while activity evaluation plays a complementary and reinforcing role in this process. On this basis, event-related affective experiences and environmental perception within the cognitive dimension function as key mediators influencing urban affective identification, determining whether individuals can transform their event experiences into emotional projections toward the city's overall image. Based on these empirical findings, this study proposes the following recommendations:

- (1) The synergistic effect of role participation, cultural identification, and activity evaluation enhances event affective identification.

Both sports events and urban image construction represent a “collective of the many”, whose essence lies in human participation and emotional engagement. The success of a sports event depends not only on venue facilities or organizational efficiency but, more critically, on the narrative transformation of participants—from spectators to actors within the story. Only when individuals acquire subjective agency in the experience can the event truly become a site of emotional resonance and identity formation. The realization of role participation can be approached through two pathways: the “celebrity effect” and the “host consciousness.” The former leverages iconic figures whose personal narratives amplify collective emotions and generate highly transmissible “individual–city” symbols. For instance, when Su Bingtian—known as the “Asian Flying Man”—served as the image ambassador for the Guangzhou Marathon, his personal story evoked public resonance and, through social media diffusion, fostered secondary emotional communication and the reproduction of urban image. The latter pathway awakens civic subjectivity through public participation, transforming audiences into cultural participants. During the Wuxi Marathon, cultural exhibition zones and interactive cheering stations along the course enabled residents to become both creators of the event atmosphere and witnesses of shared urban identity, turning sports experiences into collective emotional memories of the city<sup>60,61</sup>. Through this process—from individual inspiration to collective belonging, and from participation to identification—sports events evolve into a crucial medium connecting emotion, culture, and urban image.

The cultural construction of sports events should be grounded in local resource advantages, forming a multi-dimensional expressive logic centered on cultural symbolization, cultural experientialities, and cultural emotionalization. At the symbolic level, events transform tangible cultural elements through visual, tactile, and gustatory translation, converting urban culture into perceptible local symbols<sup>62</sup>. For example, the Suzhou Marathon integrates garden window motifs to reflect the refined elegance of Jiangnan's water-town aesthetics, while the Xi'an Marathon provides local specialties such as miniature lamb paomo at supply stations, allowing runners to experience the city's warmth through taste. At the experiential level, sports events should transcend static displays by incorporating intangible cultural heritage (ICH) and folk art performances to construct interactive experiences<sup>63</sup>. For instance, the Jiangsu City Football League integrates regional ICH into its ceremonial routines, while organizers of the Yangzhou event arrange woodblock printing exhibitions during halftime intervals, achieving a temporal–spatial fusion of traditional culture and modern sports events. At the emotional level, event narratives should intertwine sportsmanship with urban spirit, shaping emotionally resonant cultural imagery. The Wuxi Marathon, with slogans such as “Running through a painting” and “Xi for Success”, fuses the poetic landscapes of Jiangnan with the ethos of perseverance, thereby showcasing local dynamism and identity. Through the synergistic construction of symbols, experiences, and emotions, the cultural identity of sports events not only reshapes the generative logic of urban imagery but also guides audiences from perception to identification and action, achieving the transformation of the city's image from external communication to internalized recognition.

Event evaluation plays a supplementary and reinforcing role in the formation of event affective identification. Its connotation extends beyond mere satisfaction with the event process, encompassing a holistic perception of the diverse content, interactive experiences, and extended activities associated with the event<sup>64</sup>. At the practical level, event evaluation can be optimized through dual integration of offline and online dimensions. Offline, systematic improvements should focus on enhancing the richness of event content and service quality—by optimizing interactive nodes, emphasizing regional cultural performances, and highlighting the his-



torical continuity between the event and the host city—to deepen participants’ overall perception of the event and their temporal–spatial understanding of the city. Online, social media platforms can facilitate secondary dissemination through mechanisms such as viral trend creation, topic-based interaction, and co-creation of visual narratives, thereby extending the event’s popularity and fostering renewed identification and emotional resonance within the digital sphere. The success of the Guizhou Village Super League vividly illustrates the communicative value of event evaluation. The event achieved collective co-creation with a high degree of cultural integration at the extension level: during match intervals, Dong grand chorus performances, Miao reed-pipe dances, and Bouyei embroidery flash mobs transformed local intangible cultural heritage into emotional mediators. Simultaneously, short-video platforms amplified participation through topic marketing (e.g., “Village Super is on fire!”, “Ethnic style goes viral!”), generating emotional contagion that transcended geographical boundaries. The synergy between participants’ positive feedback, media amplification, and audience emotional resonance formed a virtuous cycle of event reputation, public sentiment, and brand image, demonstrating the reinforcing function of event evaluation within the overall framework of affective identification<sup>65</sup>.

## (2) Deepening Urban Affective Identification through Environmental Perception.

A city is not merely the physical carrier of sports events but also a psychological arena of emotional experience and collective memory. When post-event emotions flow back into the urban context, individuals’ environmental perception, role extension, and cultural re-identification jointly constitute three key dimensions influencing urban affective identification. As previously discussed, the dimensions of role participation and cultural identification explain how individuals achieve emotional belonging through identity transformation and cultural resonance. However, the emotions stimulated by sporting events do not dissipate upon their conclusion; rather, their spillover effects often extend into broader urban spaces, transforming into renewed recognition and emotional attachment toward the city’s overall image. Within this process, environmental perception serves as a key medium for emotional transfer—through spatial order, atmospheric design, and sensory experience, it shapes individuals’ sense of safety, comfort, and belonging within the city. These perceptual foundations, in turn, underpin the generation and maintenance of urban affective identification.

Grounded in the hierarchical structure of Environmental Perception Theory, this study proposes targeted optimization strategies across three interrelated levels—macro, meso, and micro—to systematically enhance the perceptual quality of the environment and the generative effects of urban affective identification. At the macro level, the focus lies on improving the clarity of urban spatial order and structural legibility. Systematic governance and visual guidance design should be employed to shape a “trustworthy urban interface.” Through efficient traffic organization, clean urban management, and clear spatial orientation, cities can establish a safe and reliable event environment that reflects professionalism and governance capacity. At the meso level, emphasis should be placed on integrating event routes with urban landscapes, transforming the sports scene into a “mobile urban narrative.” By embedding competition routes into landmark architectures, historic districts, and modern urban zones, cities can generate rhythmic and narrative sensory experiences during the event. Along these routes, the incorporation of city brand colors, local cultural installations, and artistic nodes can achieve a visual experience in which “the movement trajectory becomes the urban landscape.” In this sense, sports events serve as dynamic media that display the city’s spatial character and cultural warmth. At the micro level, the design should emphasize human-centered details and emotional care, enabling individuals to gain psychological comfort and a sense of urban warmth in real-time experiences. Elements such as wayfinding signage, ambient soundscapes, and citizen interactions should convey urban empathy, allowing participants and spectators to perceive thoughtfulness and respect in every detail—thus enabling the city itself to “participate emotionally” in the event. Through this multi-layered perceptual construction—from structure to experience, from scene to detail—the urban image evolves from visibility to sensibility, and from cognition to identification, becoming a key mechanism through which sports events evoke collective urban emotions and shared public memory.

Although the influence pathways of each element differ, both the construction of urban image and the activation of conative tendencies rely on systemic coordination. As an integrated assemblage of urban space, social psychology, and communication mechanisms, the effectiveness of a sports event depends on the configuration and synergistic efficiency of its constituent elements. Under the constraint of limited resources, the allocation of inputs should be strategically optimized according to the city’s characteristics and the event’s positioning: role participation should strengthen experiential engagement; environmental perception should consolidate the foundation of identification; event evaluation should enhance satisfaction; and cultural identification should expand the reach of communication effects. Through this multi-dimensional coordination, emotional resonance generated by the event and the city’s image construction can achieve synergistic optimization.

## Research limitations

- (1) Temporal limitations of a single cross-sectional design. This study employed a cross-sectional design centered on the 2025 Wuxi Marathon to collect empirical data and verify the “scene cognition–affective identification–conative tendency” transmission mechanism. However, the cross-sectional approach can only reveal correlational relationships among variables and fails to capture the dynamic evolution of affective identification and behavioral intention over time. As sports events are temporal phenomena characterized by distinct stages and emotional peaks, participants’ cognitive and affective responses are likely to be influenced by temporal effects such as pre-event expectations, in-event experiences, and post-event memories.

Future studies could adopt longitudinal tracking or experimental intervention designs to collect data across three temporal nodes—before, during, and after the event—to illustrate the dynamic variations in the cognition–affect–conation chain. Such an approach would not only help verify the persistence of emotional transfer but also identify the critical points of attenuation in event influence, thereby providing a temporal reference for sustaining city-brand communication and long-term image construction.

- (2) The need for deeper segmentation through profile-based studies. In the current model, the analysis was conducted at the aggregate-sample level, encompassing multiple stakeholder roles (athletes, volunteers, security staff, medical teams, etc.) without performing stratified analyses for specific audience profiles. In reality, different groups exhibit distinct perceptual foci, emotional responses, and conative pathways within the event scenario. For example, participants tend to focus on fairness and competitive experience; volunteers emphasize role identification and the realization of social value; and spectators prioritize social atmosphere and cultural impressions of the host city. Future research could extend the existing model by conducting profile-specific investigations—for instance, comparing non-local runners, residents, and volunteer groups—or by employing latent-class clustering to identify psychological sub-segments among audiences. Such targeted studies would not only deepen understanding of the psychological mechanisms underlying event participation but also generate more precise strategic insights for urban marketing and destination branding.

## Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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H.S. and Y.W. Conceptualization; H.S. Methodology; H.S. and Y.W. Formal analysis; Y.W. Resources; H.S. Writing – original draft; H.S., Y.W. and J.W. Writing – review & editing; J.W. Project administration.

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## Declarations

## Competing interests

The authors declare no competing interests.

### Additional information

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