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# Research on Host Residents' Support for Major Events: Validation of a Mediation Model Based on the Hangzhou Asian Games

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**Abstract**

The research examines the mediating role of residents' overall attitudes in the relationship between perceived impacts and support for the Hangzhou Asian Games. The research is based on established theories, such as social exchange theories, to explore the factors and variation patterns of residents' support behaviors. A total of 1,519 questionnaire respones were collected. The findings support the mediating effect indicating positive perceptions of socio-cultural, environmental, and economic impacts significantly enhance overall attitudes and support for the Games. Conversely, negative perceptions, particularly regarding economic impacts, may be mitigated by positive attitudes. These insights offer strategic insights to event planners and policymakers to foster residents' support so that more future events could be held successfully and smoothly.

## 1. Introduction

Sports events in the 21st century are no longer a battlefield between athletes; instead, they have transformed into vital city events that enhance the image of their respective cities and facilitate social and cultural exchanges. From the 2008 Olympic Games to the 2022 Asian Games in Hangzhou, China has hosted several large-scale international events, including the 2010 Asian Games in Guangzhou, the 2019 Military Games in Wuhan, the 2020 World University Games in Chengdu, and the 2022 Winter Olympic Games in Beijing. As more large-scale events are held, public excitement has waned since the 2008 Olympics, leading to more rational and objective discussions about these events. With the rising international interest in the legacy of the Olympics and mega-events, China has also begun researching their

impacts on host countries and cities. This study aims to contribute to this growing field of research.

The Asian Games, the largest sports event in Asia, gathers tens of thousands of athletes every four years and profoundly impacts a city's image, infrastructure, and economy. Hangzhou, known for its historical and picturesque cityscape, has rapidly developed its Internet technology industry in recent years, earning the title "Smart City". As a resident of Hangzhou, the author has closely followed the city's journey since its successful bid to host the 19th Asian Games in 2022. The coexistence of history and technology in Hangzhou presents a unique context for examining the impacts of such a large-scale event. The success of the 2022 Asian Games held in Hangzhou has once more publicized this ancient city, reveling while modernizing to the international community.

This study investigates the overall attitudes and support of Hangzhou local residents towards the Asian Games, explicitly focusing on understanding the factors influencing residents' support. A structured questionnaire is used to uncover the interactions and influencing mechanisms among residents' knowledge, affective attitudes, cognitive evaluations, and behavioral intentions regarding the Asian Games. Specifically, this research examines the Games' perceived socio-cultural, environmental, and economic impacts and how these perceptions influence residents' support. With the robust investigation, the research goal is to provide future mega-events' host cities with directional insights into targeted promotional strategies and how to leverage the regular nature of residents' support to achieve sustainable urban development and ultimately ensure the event's success.

## 2. Literature Review

### 2.1 Social Exchange Theory

Recent research has extensively utilized social exchange theory, a fundamental concept in social psychology since the 1960s, to explore residents' attitudes toward different developments and events. Homans (1961) initially proposed this theory, which views human interactions as strategic exchanges where individuals weigh potential benefits against costs. According to the social exchange theory, all human behaviors are motivated by pursuing maximum personal benefit, aiming to fulfill desires and needs while minimizing disadvantages. In 1992, Ap first applied social exchange theory to tourism research and developed a model to explain residents' attitudes toward tourism development (Ap, 1992). The model posits that residents will hold a positive attitude toward tourism development if they perceive that the benefits (e.g., improved facilities and increased income) outweigh the costs (e.g., environmental pollution and rising living costs). The robustness of this model has been validated in numerous tourism cases, highlighting the importance of reciprocity and perceived fairness. Building on Ap's work, Waitt (2003) refined social exchange theory for mega-events, emphasizing that residents evaluate potential benefits (e.g., tourism revenue, job opportunities, community pride) and costs (e.g., pollution,

increased taxes, daily inconveniences).If assessments do not meet the criterion of benefits exceeding the costs, people may choose to opt out of their participation after additional deliberation. (Waitt, 2003). Gursoy's studies across diverse contexts have further refined the model, highlighting that residents' support for tourism and mega-events depends on perceived benefits and the fairness of cost distribution. Gursoy and Kendall (2006) found that community cohesion and expected economic gains significantly influence support. Similarly, Gursoy et al. (2002) identified individual economic benefits and improved community amenities as key predictors of positive perceptions.

## 2.2 Study in Mega-Events and Residents-Related Topics

Mega-events, such as the Olympics and World Cup, are distinguished by their international appeal, large-scale infrastructure investments, and significant socio-economic and cultural impacts. They attract global attention and offer opportunities for tourism revenue, job creation, and enhanced international image (Byers et al., 2021). However, they also pose challenges, including environmental degradation and resource depletion (Preuss, 2015).Undertaking a study on such an event is expected to optimize the management and policy formulation, enrich the branding and marketing of the country and city, ensure safety and risk management of the event, and technology innovation with improved spectator experience and operational efficiency (Byers et al., 2021).Research on mega-events spans economic, social, environmental, infrastructural, and branding impacts, as well as policy governance, safety management, and technological innovation (UNWTO et al., 2017; Barrios et al., 2016).

Residents' perceptions, attitudes, and support are critical for the success and sustainability of mega-events. Positive attitudes foster long-term benefits, while negative perceptions may lead to opposition (Prayag, 2013). Studies highlight the importance of economic benefits, community attachment, and fair distribution of costs and benefits in shaping residents' support. For instance, Kim and Petrick (2005) found that financial advantages and cultural significance positively influenced Seoul residents' support for the 2002 FIFA World Cup. Fredline, Jago, and Deery (2003) developed a scale to measure the social impacts of events, highlighting benefits like enhanced community pride and recreational opportunities, which significantly influenced residents' attitudes. This tool has been widely adopted in subsequent research. Similarly, Gursoy and Kendall (2006) emphasized the role of community attachment and perceived economic benefits in determining support. Zhou and Ap (2009) further demonstrated that residents with positive past experiences were more likely to support future mega-events. Prayag et al. (2013) highlighted the importance of fair benefit distribution in fostering support, underscoring the need to separate positive and negative dimensions in assessing residents' perceptions.

In an Asian context, Huang and Hsu (2005) found that perceived benefits, such as improved infrastructure and international recognition, positively influenced residents' attitudes toward the Shanghai World Expo 2010. Similarly, Lee and Taylor

(2005) highlighted that residents' support for the 2002 South Korean World Cup was closely linked to perceived economic benefits, including job creation and business opportunities. Both studies underscore the importance of perceived benefits in fostering support for mega-events in Asian cities.

## 2.3 The Mediating Effect and Hypothesis Development

Social exchange theory posits that individuals engage in supportive behaviors when perceived benefits outweigh costs, a principle widely applied to understand residents' responses to mega-events (Ap, 1992; Waitt, 2003). Building on this, prior research suggests that overall attitudes serve as a critical mediator, influencing the effects of perceived impacts—spanning socio-cultural, environmental, and economic dimensions, each with positive and negative facets—into support behaviors (Prayag et al., 2013).

The mediating effect is widely used in statistics and psychological research. It refers to the relationship between an independent variable, an intermediary, and a dependent variable, in which the intermediary variable is a mediator (MacKinnon et al., 2007). To assess the mediating effect, we adopt the causal steps approach outlined by Baron and Kenny (1986), a widely accepted framework in mediation analysis. This method requires three conditions: (1) the independent variables (perceived impacts) must significantly affect the mediator (overall attitudes); (2) the mediator must significantly influence the dependent variable (support); and (3) when controlling for the mediator, the direct effect of the independent variables on the dependent variable should diminish, indicating partial or full mediation. Below, these steps are elaborated, with each hypothesis integrated into the relevant phase of the mediation process, supported by theoretical and empirical evidence.

**Step 1: Perceived impacts as predictors of overall attitudes**

The initial step examines how perceived impacts shape residents' overall attitudes. Positive socio-cultural aspects are expected to enhance attitudes, as social benefits typically foster favorable views toward mega-events (Ap, 2009; Gursoy & Kendall, 2006). Conversely, negative aspects such as disruptions or crime are likely to diminish attitudes, given their association with social costs (Fredline et al., 2003).

*H1a: Perceived positive socio-cultural impacts positively affect overall attitudes.*
*H1b: Perceived negative socio-cultural impacts negatively affect overall attitudes.*

In the environmental domain, positive impacts like conservation efforts should improve attitudes, reflecting the appeal of sustainable legacies (Waitt, 2003). However, negative impacts such as pollution may reduce attitudes, as environmental degradation often undermines event approval (Preuss, 2015).

*H2a: Perceived positive environmental impacts positively affect overall attitudes.*
*H2b: Perceived negative environmental impacts negatively affect overall attitudes.*

For economic impacts, positive elements like job creation and infrastructure development are anticipated to boost attitudes, consistent with evidence that economic gains enhance resident favorability (Kim & Petrick, 2005). In contrast, negative elements like financial burdens or rising costs may lower attitudes, as economic drawbacks often spark discontent (Gursoy et al., 2002).

*H3a: Perceived positive economic impacts positively affect overall attitudes.*
*H3b: Perceived negative economic impacts negatively affect overall attitudes.*

**Step 2: Overall Attitudes as a Predictor of Support**

The second step assesses the direct influence of overall attitudes on support.

*H4: Residents' overall attitude is positively related to the support of the Games.*

**Step 3: Mediating Effect of Overall Attitudes**

The final step tests whether overall attitudes is a mediator. Mediation is confirmed if the direct effect of perceived impacts on support weakens when attitudes are controlled.

*H5: Overall attitudes mediate the relationship between perceived impacts and support.*

# 3. Methods

## 3.1 Questionnaire Design

Questionnaires and surveys are the two methods to collect the residents' perceptions of the impacts. Since this study expects to draw generalized conclusions rather than in-depth feelings of individual people, a questionnaire is the most appropriate choice, as in previous studies.

This questionnaire consists of 27 questions which are divided into three main parts: perceived impacts, overall attitude, and support. Perceived impacts were referenced to the Triple Bottom Line principle to measure separately through the social, environmental, and economic dimensions. Extending from Prayag's point of splitting each dimension's positive and negative aspects, the perceived impacts were divided into six dimensions: perceived positive socio-cultural impact (SCP), perceived negative socio-cultural impact (SCN), perceived positive environmental impact (ENP), perceived negative environmental impact (ENN), perceived positive economic impact (ECP), and perceived negative economic impact (ECN).

The questions were adapted from the questionnaire used in the 2008 Beijing Olympics (Zhou & Ap, 2009) and the 2012 London Olympics (Prayag et al., 2013) studies. Two studies have proven the reliability and validity of the structure; hence, adapting this questionnaire could ensure consistency and reliability in measuring

the impacts. When answering the questions, respondents have to rate their level of agreement with each statement on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Examples of the questions include: "The Games will bring the Hangzhou community closer and foster pride among residents", "The Games will disrupt residents' regular life and increase crime rates", "The Games will improve environmental conservation and raise awareness about sustainability".

### 3.2 Delivery Method and Data Collection

Online distribution is considered to reach a larger population simultaneously. WeChat, the most widely used instant social application in China, allowed us to reach the satisfied sample population. Therefore, this questionnaire was distributed through WeChat's Moment (users share posts) and chats. Data were collected before, during, and one month after the Games. The online questionnaire was restricted to residents of Zhejiang Province by first mentioning that the questionnaire was only available to residents of Zhejiang Province while sharing the link and secondly by restricting the selection of residential addresses to only cities in Zhejiang Province.

## 4. Results

### 4.1 Data Overview

After three rounds of collection, 1519 completed questionnaires were received: 649 in the first round (42.73%), 423 in the second round (27.85%), and 447 in the third round (29.43%). The high number of responses in the first-round contrasts with a decrease in the latter two rounds, as participants might have experienced survey fatigue over time. An overview of the questionnaire response is shown in Table 1.

### 4.2 Reliability and Validity Assessment

From Table 2, we have tested Cronbach's α for the entire questionnaire; the number 0.902 indicates the questionnaire is reliable and internally consistent. We also tested the composite reliability for all 6 dimensions since some dimensions collected opposite sides of one aspect, e.g., perceived positive socio-cultural impacts and perceived negative socio-cultural impacts (Werts et al., 1974). The composite reliabilities of all dimensions ranged from 0.8 to 0.91, above the threshold of 0.7, confirming the reliability of the questionnaire measures (Fornell & Larcker, 1981). To test validity, confirmatory factor analysis, principal component analysis, and orthogonal rotated factor analysis using the maximum variance method were used.

First, KMO and Bartlett's tests were used to assess whether our data set is suitable for factor analysis (Shrestha, 2021). Table 4 calculated the KMO value to be 0.954, indicating adequate sampling. The p-value of Bartlett's test of Sphericity, less than 0.05, also indicates that factor analysis is worthwhile for this study. Convergent validity is tested using the factor loading and Average Variance Extracted (AVE). Table 5 illustrates factor loadings and corresponding t-statistics. All factor loadings

were above 0.6 and statistically significant. The AVE values of each dimension in Table 3 were also all greater than 0.6. Both results demonstrated that convergent validity is confirmed (Shrestha, 2021). Table 6 includes the square roots of each AVE and inter-correlations between each pair of dimensions. According to Furnell and Larker (1981), the discriminant validity is tested by comparing the diagonal values to the off-diagonal ones, and a larger diagonal value suggests a result of discriminant validity. All diagonal values in Table 6 are greater than other non-diagonal values; therefore, discriminant validity is also established.

Table 1 Descriptive statistics of questionnaire results

| Items | | B | D | A | Avg. |
|---|---|---|---|---|---|
| SCP1 | The Games will bring the Hangzhou community closer and cohesion | 4.24 | 4.28 | 4.21 | 4.24 |
| SCP2 | The Games will provide residents a chance to meet new people | 4.26 | 4.25 | 4.22 | 4.24 |
| SCP3 | The Games will foster pride among residents and Chinese people | 4.57 | 4.6 | 4.52 | 4.56 |
| SCP4 | The Games will promote Hangzhou as a multi-cultural destination | 4.65 | 4.71 | 4.66 | 4.67 |
| SCP5 | The Games will provide residents relaxation and entertainment | 4.37 | 4.37 | 4.36 | 4.37 |
| SCN1 | The Games will disrupt residents' regular life | 2.25 | 2.39 | 2.44 | 2.34 |
| SCN2 | The Games will lead to overcrowding of local facilities | 2.33 | 2.41 | 2.51 | 2.41 |
| SCN3 | The Games will increase crime | 1.85 | 1.79 | 1.78 | 1.81 |
| ENP1 | The Games will improve environmental conservation and protectionism | 4.41 | 4.41 | 4.40 | 4.41 |
| ENP2 | The Games will raise environmental awareness | 4.33 | 4.32 | 4.30 | 4.32 |
| ENP3 | The Games will stimulate planning and administrative controls | 4.48 | 4.49 | 4.40 | 4.46 |
| ENN1 | The Games will damage the natural environment | 2.23 | 1.98 | 1.92 | 2.07 |
| ENN2 | The Games will increase noise, visual or air pollution | 2.37 | 2.20 | 2.24 | 2.29 |
| ENN3 | The Games will increase littering | 2.37 | 2.10 | 2.09 | 2.21 |
| ECP1 | The Games will provide locals employment opportunities | 4.03 | 3.92 | 3.81 | 3.94 |
| ECP2 | The Games will improve the provision of public services and infrastructures | 4.54 | 4.51 | 4.58 | 4.53 |
| ECP3 | The Games will enhance Hangzhou's international reputation and image through world media exposure | 4.60 | 4.58 | 4.61 | 4.59 |
| ECP4 | The Games will increase business opportunities | 4.39 | 4.30 | 4.30 | 4.34 |
| ECP5 | The Games will lead to the regeneration and redevelopment of towns and cities | 4.53 | 4.51 | 4.49 | 4.51 |

Table 1 Descriptive statistics of questionnaire results

| Items | | B | D | A | Avg. |
|---|---|---|---|---|---|
| ECN1 | The Games will lead to the increase of financial burden and affect residents' welfare | 2.64 | 2.62 | 2.63 | 2.63 |
| ECN2 | The Games will lead to increased life expenses for residents | 2.95 | 2.75 | 2.84 | 2.86 |
| ECN3 | The large investment required to host the Games cannot be justified in terms of the economic benefits that will be generated for residents | 2.84 | 2.78 | 2.84 | 2.82 |
| ATT1 | Overall, I am excited about Hangzhou hosting the Hangzhou Asian Games | 4.67 | 4.64 | 4.62 | 4.65 |
| ATT2 | Overall, the Games positive impacts will outweigh its negative ones | 4.47 | 4.45 | 4.43 | 4.45 |
| SUP1 | I support the Hangzhou Asian Games as a resident | 4.67 | 4.63 | 4.59 | 4.64 |
| SUP2 | I would like to contribute to the Hangzhou Asian Games, e.g. volunteers, community services | 4.55 | 4.54 | 3.99 | 4.38 |
| SUP3 | Zhejiang and Hangzhou should bid for other major sporting events | 4.46 | 4.46 | 4.42 | 4.45 |

Note: B = before the Games, D = during the Games, A= after the Games, Avg. = Total average score

Table 2 Overall reliability using Cronbach's α.

| Items | Sample size | Cronbach's α |
|---|---|---|
| 35 | 1519 | 0.902 |

Table 3 Factor analysis: composite reliability and average variances extracted (AVE).

| Factor | CR | AVE |
|---|---|---|
| Perceived Positive Socio-cultural Impacts (SCP) | 0.91 | 0.661 |
| Perceived Negative Socio-cultural Impacts (SCN) | 0.83 | 0.618 |
| Perceived Positive Environmental Impacts (ENP) | 0.89 | 0.730 |
| Perceived Negative Environmental Impacts (ENN) | 0.86 | 0.671 |
| Perceived Positive Economic Impacts (ECP) | 0.91 | 0.678 |
| Perceived Negative Economic Impacts (ECN) | 0.83 | 0.614 |
| Overall Attitude (ATT) | 0.80 | 0.676 |
| Support (SUP) | 0.83 | 0.623 |

Table 4 KMO and Bartlett Testing

| KMO | | 0.954 |
|---|---|---|
| Bartlett's Test of Sphericity | $\chi^2$ | 31126.430 |
| | df | 351 |
| | Sig. | 0.000** |

Table 5 Factor analysis: item means, standard deviations, item loadings, and t-statistics.

| Factors | Mean | SD | Factor loadings | t-statistics |
|---|---|---|---|---|
| SCP1 | 4.242 | 0.996 | 0.82 | 165.950** |
| SCP2 | 4.244 | 1.024 | 0.81 | 161.608** |
| SCP3 | 4.560 | 0.851 | 0.86 | 208.914** |
| SCP4 | 4.670 | 0.763 | 0.77 | 238.472** |
| SCP5 | 4.369 | 0.914 | 0.81 | 186.338** |
| SCN1 | 2.344 | 1.339 | 0.85 | 68.205** |
| SCN2 | 2.407 | 1.394 | 0.78 | 67.284** |
| SCN3 | 1.810 | 1.226 | 0.72 | 57.527** |
| ENP1 | 4.408 | 0.911 | 0.88 | 188.492** |
| ENP2 | 4.318 | 0.922 | 0.87 | 182.457** |
| ENP3 | 4.460 | 0.872 | 0.82 | 199.256** |
| ENN1 | 2.066 | 1.270 | 0.81 | 63.410** |
| ENN2 | 2.286 | 1.256 | 0.85 | 70.937** |
| ENN3 | 2.212 | 1.260 | 0.80 | 68.396** |
| ECP1 | 3.937 | 1.082 | 0.66 | 141.834** |
| ECP2 | 4.534 | 0.779 | 0.87 | 226.982** |
| ECP3 | 4.594 | 0.761 | 0.85 | 235.426** |
| ECP4 | 4.339 | 0.888 | 0.82 | 190.489** |
| ECP5 | 4.513 | 0.793 | 0.89 | 221.727** |
| ECN1 | 2.633 | 1.334 | 0.86 | 76.892** |
| ECN2 | 2.862 | 1.295 | 0.73 | 86.172** |
| ECN3 | 2.822 | 1.327 | 0.75 | 82.847** |

| | | | | |
|---|---|---|---|---|
| ATT1 | 4.646 | 0.749 | 0.94 | 241.767** |
| ATT2 | 4.454 | 0.962 | 0.68 | 180.454** |
| SUP1 | 4.636 | 0.747 | 0.93 | 241.790** |
| SUP2 | 4.382 | 1.018 | 0.61 | 167.685** |
| SUP3 | 4.445 | 0.917 | 0.80 | 188.872** |

Note: **Significant level at 0.01

Table 6 Factor means, standard deviations, and inter-construct correlations.

| | Mean | SD | SCP | SCN | ENP | ENN | ECP | ECN | ATT | SUP |
|---|---|---|---|---|---|---|---|---|---|---|
| SCP | 4.417 | 0.777 | **0.813** | | | | | | | |
| SCN | 2.187 | 1.137 | -0.134 | **0.786** | | | | | | |
| ENP | 4.395 | 0.817 | 0.734 | -0.202 | **0.855** | | | | | |
| ENN | 2.188 | 1.115 | -0.178 | 0.671 | -0.224 | **0.819** | | | | |
| ECP | 4.384 | 0.734 | 0.738 | -0.143 | 0.738 | -0.189 | **0.824** | | | |
| ECN | 2.772 | 1.133 | -0.206 | 0.570 | -0.209 | 0.647 | -0.191 | **0.784** | | |
| ATT | 4.550 | 0.776 | 0.643 | -0.159 | 0.621 | -0.163 | 0.716 | -0.135 | **0.822** | |
| SUP | 4.488 | 0.768 | 0.667 | -0.172 | 0.652 | -0.188 | 0.751 | -0.200 | 0.788 | **0.789** |

## 4.3 Mediating Effect Analysis

The hypothesis we are testing in this study is whether residents' attitudes mediate the relationship between perceived impacts and support. The seminal work by Baron and Kenny (1986) established a classic causal steps approach for testing the mediating effect, and it is the current most widely used method to assess mediation. Based on their work, there are 4 steps to test a single-mediator model: first, a significant relationship should be found between the independent variable and the dependent variable; second, the independent variable should be significantly related to the mediator; third, the mediator to the dependent variable should have a direct link as well; the final step is to control the mediator and check if the relationship between the independent variable and the dependent variable is reduced. In practice, the final step is completed by comparing the coefficient relating to the independent and dependent variables with and without the mediating variable added.

Table 7 Mediating effect tests using linear regression.

| | c | a | b | a*b | *z* | *p* | 95% CI | c’ |
|---|---|---|---|---|---|---|---|---|
| SCP=>ATT=>SUP | 0.19** | 0.21** | 0.47** | 0.10 | 4.50 | 0.00 | 0.06 ~ 0.15 | 0.09** |
| SCN=>ATT=>SUP | -0.03* | -0.05** | 0.47** | -0.03 | -2.06 | 0.04 | -0.06 ~ -0.01 | -0.01 |
| ENP=>ATT=>SUP | 0.12** | 0.10** | 0.47** | 0.05 | 2.51 | 0.01 | 0.02 ~ 0.09 | 0.07** |
| ENN=>ATT=>SUP | 0.01 | -0.001 | 0.47** | -0.001 | -0.06 | 0.95 | -0.02 ~ 0.02 | 0.01 |
| ECP=>ATT=>SUP | 0.53** | 0.51** | 0.47** | 0.24 | 9.18 | 0.00 | 0.18 ~ 0.28 | 0.29** |
| ECN=>ATT=>SUP | -0.01 | 0.04** | 0.47** | 0.02 | 2.03 | 0.04 | 0.01 ~ 0.06 | -0.04** |

Note: **Significant level at 0.01, * Significant level at 0.05

All data are presented in Table 8. Result "c" indicates the direct effect of the independent variables (SCP, SCN, ENP, ENN, ECP, and ECN) on the dependent variable, SUP. The values under "a" reflect the relationships between each dimension of impacts and the mediator, ATT. Additionally, "b" represents the linear regression coefficient between ATT and SUP. The adjusted coefficient "c'" is calculated by including impact dimensions and attitude in the model.

We observed no significant relationship between the negative perceived economic impact (ECN) and support, failing to meet the first criterion for mediation testing. Negative perceived environmental impact (ENN) does not hold for the first two steps. The third step holds for the rest, as overall attitude has a strong relationship with support, with the coefficient b=0.47. The final step mandates that the coefficient c be smaller than c to conclude mediation. Among the dimensions for the prior three steps, our findings indicate that overall attitude mediates between perceived impacts (except ENN and ECN) and support; no mediation by ATT between ENN and SUP; lastly, a masking effect detected between ECN, ATT, and SUP. Additionally, the mediating effect between SCP, ENP, ECP, and SUP is partial mediation, where only SCN and SUP show a Total mediation by overall attitude. For example, the coefficient for the relation of perceived positive socio-cultural impact and support dropped from 0.19 ($p<0.05$) to 0.09 ($p<0.05$).

Contrary to the hypothesis, the relationship between ECN and SUP became significant only after controlling for overall attitude, suggesting a masking effect. This masking effect implies that overall attitude may confound or interact with the perceived negative economic impact, influencing support. The true effect becomes clear and statistically significant only when controlling the overall attitude.

## 5. General Discussion

This study investigated the mediating effect of overall resident attitudes on the relationship between perceived impact and support for the Hangzhou Asian Games. The first part of this questionnaire aimed to test the consistency of the model proposed by Prayag et al. (2013). This model considers various factors influencing residents' attitudes towards sports mega-events. The analysis results largely confirm that overall attitudes play a key mediating role, but some nuances warrant further discussion.

The analysis followed the four steps outlined by Baron and Kenny (1986) to test for mediating effects. The results presented in Table 8 indicate that positive socio-cultural impacts (SCP), environmental impacts (ENP), and economic impacts (ECP) significantly enhance residents' overall attitudes, which in turn are positively correlated with their support for the activity. These findings supported hypotheses 1a, 2a, 3a, and 4, meaning that people are more likely to support an event when they hold favorable perceptions of the sociocultural, environmental, and economic impacts. Accepting these hypotheses aligns with the findings of Prayag et al. (2013) by highlighting the significant impact of perceived positive impacts on molding public views and support for important events.

On the negative side, the study found that negative socio-cultural impacts (SCN) had a strong negative impact on support, which supports Hypothesis 1b. Unfavorable socio-cultural perceptions decrease general attitudes, resulting in less support. In addition, the perceived negative environmental impacts (ENN) did not show a significant indirect effect, rejecting Hypothesis 2b. This result also aligns with Prayag et al. (2013), who found that negative environmental perceptions often do not significantly affect overall support for mega-events. However, a unique masking effect is discovered for negative economic impacts (ECN). The relationship between ECN and support became significant only after controlling for overall attitude, suggesting that overall attitude may confound or interact with perceived negative economic impacts, influencing support. This finding partially supports Hypothesis 3b and highlights the complexity of residents' perceptions, where concerns about economic impacts might be outweighed by other positive factors related to attitudes, emphasizing the multifaceted nature of public support.

Interestingly, perceived positive environmental impacts (ENP) were strongly connected with overall attitudes and support. In the context of the data collection was not long-term post-event, this finding contrasts with earlier studies (May, 1995; Prayag et al., 2013) as they suggested that residents often perceive negative environmental impacts in a short time after the event. A potential reason for this divergence is the environmental policy and outstanding promotional efforts by the Organizing Committee. The Hangzhou Asian Games Organizing Committee's emphasis on a "green" theme and sustainable practices may have heightened positive environmental perceptions among residents. This focus on eco-friendliness and the widespread promotion of the Games' environmental initiatives likely contributed to the positive correlations observed. This finding is particularly noteworthy in the global trend towards eco-friendly activities. Promoting the environmental benefits of these events can prime residents to recognize and appreciate these efforts, leading to more favorable attitudes and increased support.

The perceived positive economic impacts (ECP) showed the strongest mediation effect, indicating that economic benefits are crucial for enhancing public support. This is consistent with studies by Preuss (2006), which highlighted the economic benefits of hosting mega-events as a primary driver of public support. The significant direct and indirect effects of ECP on support suggest that tangible economic benefits, such as job creation and tourism revenue, are highly valued by residents. Conversely, the masking effect observed for negative economic impacts (ECN) indicates that overall attitudes can mitigate concerns about economic drawbacks. This finding adds a new dimension to our understanding of public perceptions. While residents may express concerns about potential economic downsides, their overall positive attitudes toward the event can overshadow these concerns.

Hypothesis 5, which proposed that overall attitudes mediate the relationship between perceived impacts and support, is partially accepted. The mediation is evident in the positive socio-cultural, environmental, and economic impacts but not in the negative ones. This partial mediation aligns with Prayag et al. (2013) and suggests that further research is needed to better predict residents' support by considering additional factors and potential moderators.

Regarding reductions in event size, this paper finds little evidence to support that residents may react differently to a one-level reduction in event size from the Olympic Games to the Asian Games. Despite that, there was an obvious gap in the global influence of the Olympic Games and the Asian Games, there was less of a gap in the number of participants and venues for the former, so it's possible that their impacts on the host city were roughly comparable.

The findings of this study have several theoretical and practical implications. Theoretically, the findings provide a nuanced understanding of the existing literature on how different dimensions of perceived impact influence overall attitudes and support for mega-events. The partial mediating effects observed across socio-cultural, environmental, and economic dimensions emphasize the importance of considering multiple factors when assessing public support. This is consistent with the wider literature on event management and public perceptions, suggesting that a multifaceted approach is critical to gaining and maintaining public support (Gursoy et al., 2004; Kim et al., 2006). Besides this, the study includes some new insights, such as the masking effect of negative economic impacts, which deepens our understanding of how residents weigh trade-offs in their support decisions.

The findings highlight the critical role of perceived socio-cultural and economic benefits in driving event support, suggesting that organizers should prioritize clear, transparent communication of advantages to residents. For example, publicity contents should focus on emphasizing benefits like community cohesion, job opportunities, and infrastructure development. Conversely, the study identifies negative factors, such as traffic congestion, as barriers to long-term support. This implies that practical measures like traffic and disruption management are essential to address resident concerns. Furthermore, the mediating role of attitudes indicates that cultivating a positive overall image of the event can sustain support, even if some drawbacks occur. Together, these insights offer a strategic framework to event planner

and policy maker for organizing future mega-events in a way that maximizes community backing and ensures long-term sustainability.

## 6. Limitations and future research

Although due to limited personal research ability and research conditions, there are still many limitations in the whole research process. During the sample collection phase, we undertook extensive efforts to disseminate the questionnaire via WeChat and QR code sharing, progressively expanding our reach from one social circle to another. Notably, we could not secure a larger sample from non-host cities, which necessitates further scrutiny of the generalizability of our findings.

Future studies could use stratified sampling to include non-host cities and employ longitudinal designs spanning one year to capture long-term attitude shifts.

Additionally, an in-depth understanding of residents' perceptions could be adapted through further research. A large number of studies have found factors influencing residents' support through quantitative research. One specific example is the perceived negative impact, which is not significantly related to support in both this and Prayag's study. Therefore, a qualitative study could help us comprehend why such relationships exist.

Another potential advancing direction of this study is to find the difference between Chinese residents' results and those of other countries or between Western and Eastern countries. It would also be helpful to understand whether the Chinese governing policy would be a factor in overall residents' perception, attitudes, and support and, if it is, how it works.

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**Appendix：English translation of the questionnaire**

**Questionnaire about Hangzhou Asian Game**

Hello！

I am a current master' s student majoring in Sports Management. I am conducting a study on the Asian Games and would like to ask for your valuable opinions. Please take a few minutes to read the following questions carefully and give me your honest answers.

Your answers will play a vital role in my research. Your personal information will not be disclosed, and all data will be used for academic research purposes only.

Thank you for your participation and support!

The following list of impact by the Asian Games, according to your own experience, please rate from strongly agree to strongly disagree.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|
| The Games will bring the Hangzhou community closer and cohesion | ○ | ○ | ○ | ○ | ○ |
| The Games will provide residents a chance to meet new people | ○ | ○ | ○ | ○ | ○ |
| The Games will foster pride among residents and Chinese people | ○ | ○ | ○ | ○ | ○ |
| The Games will promote Hangzhou as a multi-cultural destination | ○ | ○ | ○ | ○ | ○ |
| The Games will provide residents relaxation and entertainment | ○ | ○ | ○ | ○ | ○ |
| The Games will disrupt residents' regular life | ○ | ○ | ○ | ○ | ○ |
| The Games will lead to overcrowding of local facilities | ○ | ○ | ○ | ○ | ○ |
| The Games will increase crime | ○ | ○ | ○ | ○ | ○ |
| The Games will improve environmental conservation and protectionism | ○ | ○ | ○ | ○ | ○ |
| The Games will raise environmental awareness | ○ | ○ | ○ | ○ | ○ |
| The Games will stimulate planning and administrative controls | ○ | ○ | ○ | ○ | ○ |
| The Games will damage the natural environment | ○ | ○ | ○ | ○ | ○ |
| The Games will increase noise, visual or air pollution | ○ | ○ | ○ | ○ | ○ |
| The Games will increase littering | ○ | ○ | ○ | ○ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| The Games will provide locals employment opportunities | ○ | ○ | ○ | ○ | ○ |
| The Games will improve the provision of public services and infrastructures | ○ | ○ | ○ | ○ | ○ |
| The Games will enhance Hangzhou's international reputation and image through world media exposure | ○ | ○ | ○ | ○ | ○ |
| The Games will increase business opportunities | ○ | ○ | ○ | ○ | ○ |
| The Games will lead to the regeneration and redevelopment of towns and cities | ○ | ○ | ○ | ○ | ○ |
| The Games will lead to the increase of financial burden and affect residents' welfare | ○ | ○ | ○ | ○ | ○ |
| The Games will lead to increased life expenses for residents | ○ | ○ | ○ | ○ | ○ |
| The large investment required to host the Games cannot be justified in terms of the economic benefits that will be generated for residents | ○ | ○ | ○ | ○ | ○ |
| Overall, I am excited about Hangzhou hosting the Hangzhou Asian Games | ○ | ○ | ○ | ○ | ○ |
| Overall, the Games positive impacts will outweigh its negative ones | ○ | ○ | ○ | ○ | ○ |
| I support the Hangzhou Asian Games as a resident | ○ | ○ | ○ | ○ | ○ |
| I would like to contribute to the Hangzhou Asian Games, e.g. volunteers, community services | ○ | ○ | ○ | ○ | ○ |
| Zhejiang and Hangzhou should bid for other major sporting events | ○ | ○ | ○ | ○ | ○ |

*Given the timing of the questionnaire distribution relative to the Games, the questions in all three rounds of questionnaires have been updated in terms of tense and grammar.