



Evaluating the perceived social impacts of hosting large-scale sport tourism events: Scale development and validation



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HIGHLIGHTS

- Conceptualization of the constructs of perceived social impacts and to develop a valid scale.
- The Scale of Perceived Social Impacts, a six-factor model with 23 items, was developed through the scale development procedures.
- This study revealed the multi-dimensional nature of perceived social impacts associated with sport tourism events.

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ABSTRACT

Resident perceptions of social impacts resulting from hosting large-scale sport tourism events have become important factors for obtaining community-wide event support. However, perception studies have been limited due to the lack of valid and reliable instrumentation to measure both positive and negative impacts. The purpose of this study was to develop and test a multidimensional scale to evaluate the perceived social impacts of a large-scale sport tourism event. A questionnaire was developed and tested among host community residents ($N = 1567$) for the F1 Korean GP in South Korea. The analyses resulted in a six-factor model with 23 items to assess perceived social impacts: (1) economic benefits; (2) community pride; (3) community development; (4) economic costs; (5) traffic problems; and (6) security risks. This study revealed the multi-dimensional nature of perceived social impacts and contributed to a better understanding of how local residents view the impacts associated with a large-scale sport tourism event.

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1. Introduction

Large-scale sport tourism events attract a wide range of national and international attendees (Kim & Walker, 2012; Ritchie, Shipway, & Cleeve, 2009). Accordingly, these events (e.g., Super Bowl, Rugby World Cup, Olympic Games) are generally regarded as leveraging opportunities for economic growth and urban (re)development (Konstantaki & Wickens, 2010; Soutar & McLeod, 1993). For example, increasing income and job opportunities, minimizing inflation (Homafar, Honari, Heidary, Heidary, & Emami, 2011), and enhancing the status of under-represented cities and/or countries (Bull & Lovell, 2007) are considered salient outcomes of event

hosting. These impacts aside, limited research has investigated the positive non-economic impacts of hosting large-scale sport tourism events (Bull & Lovell, 2007; Kim, Gursoy, & Lee, 2006; Kim & Petrick, 2005). Conversely, these events can also result in significant economic costs (i.e., taxes and real estate) and negative socio-psychological impacts (i.e., disorder, security issues, traffic congestion). In light of these potential negatives, event planners and government officials are beginning to tout the social benefits that accrue from hosting (e.g., civic pride, community image, fostering political consolidation). And, although the potential negative outcomes are ever-present, a high level of demand for hosting large-scale sport tourism events still remains.

In order to acquire community-wide support, event planners should better understand how residents perceive both the positive and negative impacts that events provide (Kim & Morrision, 2005; Kim & Walker, 2012; Park, 2009; Prayag, Hosany, Nunkoo, & Alders, 2013). Unlike economic impacts, social impacts can be

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difficult to quantify. For this reason, there has been a lack of research aimed at adequately capturing residents' perceived benefits and costs of hosting large-scale sport tourism events. In particular, existing scales have been developed using resident samples from under-represented events, which have mainly emanated from the event and hospitality management disciplines. As such, there has been comparatively limited research in varying event contexts. While growing attention has been placed on exploring stakeholders' psychological benefits of hosting large-scale sport tourism events, a multi-dimensional investigation of how residents develop social impact perceptions from event hosting have been somewhat ignored (Teye, Sonmenz, & Sirakaya, 2002). It is important to understand the need for balanced research between tangible impacts and intangible impacts for planning and operating a publicly acceptable event (Kim & Petrick, 2005; Kim & Walker, 2012; Prayag et al., 2013). In light of this point, the purpose of this study was twofold: (1) explore a conceptual framework of residents' perceived social impacts, and (2) develop a valid and reliable instrument to measure local residents' perceived social impacts of hosting a large-scale sport tourism event.

2. Research context: formula one Korean Grand Prix (F1 Korean GP)

The Formula One Grand Prix (F1 GP) is among the most popular racing sports in the world, and considered by many to be the highest-profile international sport circuit (Formula1, 2012). The Korea Auto Valley Operation (KAVO) was initiated to lead the bidding process for hosting F1 GP in South Korea. KAVO was the central operating organization for F1 Korean GP that successfully bid to host a round of the *Fédération Internationale de l'Automobile* (FIA) F1 GP in South Korea (Formula1). The event promoted various public events and promotions before and during the event to the local community and surrounding areas.

The event location was assigned to a rural area of South Korea, where KAVO and local and national government agencies jointly began infrastructure and venue construction for the event. However, the national government halted financial support for the event due to varying political issues. Therefore, the local government of the Jeollanam-do province and KAVO worked jointly to develop necessary infrastructure and associated venues (i.e., Korean International Circuit in Yeongam County). Jeollanam-do province and KAVO spent approximately \$275 million to build the Korean International Circuit (KIC), which accommodates up ~130,000 spectators with ~16,000 seats in the main grandstand. The event location has been a contentious issue for hosting the event because it is located 200 miles from Seoul, the capital of South Korea. Due to its isolated location and lack of infrastructure, the F1 Korean GP event has faced numerous criticisms from the public and economists (Kim, 2010). In light of these criticisms, the F1 Korean GP has been successfully held at KIC since 2010, which has helped the event garner significantly more attention from both national and international media outlets. However, the F1 Korean GP is still struggling with its lack of financial stability due to inconsistent financial support from the South Korean government. In addition, local residents have constantly complained that their opinions have been ignored during the event planning and development process, which has resulted in public dissension towards the event.

3. Theoretical framework

Social Exchange Theory (SET) comprises psychological and sociological perspectives that offer a lens to view social change and stability through stakeholder exchanges (Ap, 1990; Emerson, 1976).

Since this particular theory allows for "... the examination of large-scale social issues by means of the investigation of small-scale social situations" (Stolte, Fine, & Cook, 2001, p. 388), community residents are likely to shape their event hosting perceptions from the expected value exchange prior to an exchange occurring (Ap, 1990; Kim et al., 2006). From this perspective, the theory holds that individuals interact with others for profit, or the expectation of profit from their acceptance of an anticipated activity. Accordingly, stakeholder behaviors are derived from seeking rewards and avoiding punishment from expected exchange processes (Bandura, 1977). Individuals have access to abundant information regarding social, psychological, and economic aspects of interaction that push them to seek more profitable situations over and above their present condition (Ap, 1990; Bandura, 1977; Mill, 1985), which can be explained using a basic economic formula: $Profit = Reward - Costs$ (Mill, 1985). This formula is used to reveal individual motives to act in the group for seeking their own benefits (Homans, 1958; Mill, 1985).

Studies in tourism, sport management, and hospitality management have examined stakeholders' perceived impacts from hosting sport tourism events using SET (Ap, 1990; Gursoy, Jurovski, & Uysal, 2002; Kim et al., 2006; Kim & Petrick, 2005). In sport management, the theory has been used to emphasize how host community residents shape their perceptions of events based on the expected benefits from hosting (Gursoy et al., 2002; Kim & Petrick, 2005). For example, local residents who reside in a host region tend to form their event perceptions by evaluating the anticipated benefits before the exchange (Kim et al., 2006). This initial perception serves as a "reference point" or "pre-criteria" for evaluating the event-related impacts (Kahneman & Tversky, 1979). This exchange leads to an evaluation whereby, if the resident is not satisfied, negative perceptions and unsupportable behaviors for future events will result. On the other hand, if residents are satisfied with the perceived benefits from the event, they will form positive perceptions and supportive behavioral intentions toward future events (Ap, 1990; Kim et al., 2006; Kim & Petrick, 2005).

Research has revealed a variety of factors that influence resident evaluations of possible benefits and costs of event hosting. For example, residents generally form their perceptions of hosting based on prior experiences (Baloglu & McCleary, 1999) and socio-demographic information (Kim & Petrick, 2005; Ritchie et al., 2009; Waitt, 2003). Additionally, researchers have argued that attitude differences can be derived from resident heterogeneity (Kim et al., 2006). For instance, organizers of the 2012 London Olympic Games focused on generating positive consensus from local residents toward hosting the event. During this process, they executed a variety of social leveraging campaigns focused on enhanced well-being of the local community and cultivating positive attitudes from local residents (Gursoy et al., 2002). If residents perceived benefits from the event, they would be supportive of hosting in the future. Conversely, if they lacked a satisfied exchange after the event, residents might revise their perceptions toward future hosting endeavors (Fredline & Faulkner, 2002; Kim & Petrick, 2005). Hence, it is important to investigate the perceptions of residents on social impacts toward hosting large-scale sport tourism events in order to generate supportive attitudes toward future event hosting.

4. Literature review

4.1. The impact of hosting large-scale sport tourism events

It is widely known that hosting large-scale sport tourism events such as the Olympic Games and the FIFA World Cup garner

substantial attention worldwide (Kim & Walker, 2012). These large-scale sport tourism events are defined as one-time “hall-mark” events that generate both positive and negative impacts on host communities (Ritchie & Aitken, 1985; Ritchie, 1984). For example, researchers have suggested that host regions can witness positive economic and social benefits through hosting large-scale sport tourism events (Chalip, 2006; O'Brien, 2006). In fact, events related to sport tourism produced 1.3% increases in domestic growth and reduced unemployment rates by 1.9% from 1997 to 2005 (Kasimati & Dawson, 2009). In light of these data, there has been increased competition to bid for and acquire rights to host such events. As such, generating local resident support has been considered an essential part for planning and operating successful events (Kim & Morrision, 2005). Although a number of studies have been conducted to explore the impacts of hosting large-scale sport tourism events, the have been focused on mainly tangible outcomes (i.e., economic benefits) rather than social impacts.

4.2. Social impacts

Although economic impacts are important, exploring social impacts may have an even more substantial influence on the community (Gibson, 2007). According to Kim and Petrick (2005), understanding the need for a balance between economic and social goals is crucial for establishing successful sport tourism event operations. While social impacts have been analyzed in diverse contexts, they have been commonly assessed as a one-dimensional concept. This is problematic since many have argued that psychological impacts should be examined separately without the consideration of social impacts (Burgan & Mules, 1992; Crompton, 2004; Gibson, 1998; Ritchie & Aitken, 1985). However, others have argued that socio-psychological attitudes and impacts are correlated and hard to be separated completely (Delamere, 2001; Delamere, Wankel, & Hinch, 2001; Fredline, Jago, & Deery, 2003; Kim & Petrick, 2005; Kim et al., 2006). Given these recommendations, the current study employed perceived social impacts as consolidated concept for both positive and negative dimensions.

Ritchie and Aitken (1985) explored residents' attitudes toward hosting 1988 Olympic Winter Games, indicating that residents showed consistent interest in hosting the Games and satisfied benefits from the event were seen. Ritchie and Lyons (1987) conducted a similar study on the 1988 Winter Olympic Games, finding that Calgary residents showed high level of support for hosting. Soutar and McLeod (1993) examined perceptions of the America's Cup event using a time series design. Residents noted that living conditions were significantly enhanced after the event and a positive social impact derived from hosting a major sport tourism event did result. However, the development of a measurement tool was not undertaken for this project.

Jeong (1998) examined residents' perceived impacts from hosting the International Science EXPO in Daejeon, Korea. While not sport-related, this study developed new items to measure perceived social impacts of hosting the event. Results indicated that both positive social impacts (e.g., urban development) and negative impacts (e.g., traffic problem) were central to event hosting. In particular, the degree of perceived social impact was differently influenced by socio-demographic variables. Delamere et al. (2001) explored a broad range of non-economic benefits and costs of hosting community festivals by measuring local resident attitudes toward social impacts. The results provided initial conceptual guidance to assess social impacts of event hosting. Additionally, Delamere (2001) conducted a scale development study based on measuring resident attitudes of specific impacts rather than utilizing conceptual information for measuring perceived social

impacts. Two factors (i.e., social benefits and social costs) were developed. This scale was the first to measure of residents' perceived social impacts, however. The lack of comprehensive constructs to measure both positive and negative impacts limits its utility (Kim & Petrick, 2005).

Kim and Petrick (2005) examined residents' perceived social impacts toward hosting the 2002 FIFA World Cup Korea and Japan, based on the work of Delamere (2001). The authors developed a pool of 31 items related to resident perceptions of the positive and negative social impacts of the event. The authors found image enhancement and consolidation to be the most salient positive factors, while economic impacts and traffic issues were main negative impacts. Similar to Kim and Petrick (2005), Kim et al. (2006) examined the tourism impact of the 2002 World Cup in Korea. For this study, the tourism impact scale with total of 26 items under sociocultural and economic dimensions was developed. In addition, Collins, Flynn, Munday, and Roberts (2007) found that hosting large-scale sport tourism events caused overcrowding and noise pollution, increased crime rates and security costs, property cost inflation, and sanitization costs for undesirable objects. Gursoy and Kendall (2006) developed and validated a structural model to measure residents' perceived impacts from hosting the 2002 Winter Olympic Games. The authors revealed how both direct and indirect impacts influenced resident supports toward event hosting. More recently, Ritchie et al. (2009) examined the perceived social impacts of the 2012 London Olympic Games. The authors adopted total of 33 conceptualized impact statements from Fredline and Faulkner (2001) and Weymouth and Portland Borough Council's annual report (2007). This study used ‘triple bottom line’ approach to assess perceived social impacts of hosting the mega-sport event with three impact factors (e.g., positive social impacts, negative impacts, and positive economic impacts).

In summarizing the preceding review, we note that while a variety of studies have developed tools for assessing social impacts, many have shortcomings. Current measurement scales for assessing social impacts of hosting sport tourism events were developed through exploratory factor analyses (EFA) (Delamere, 2001; Fredline & Faulkner, 2001). In addition, Kim and Petrick (2005) and Kim et al. (2006) developed scales based on the conceptual framework of Delamere (2001). Their scales used only Cronbach's alpha coefficient statistics and EFA's to develop their respective scales. As well, their sample sizes failed to meet many of the recommended criteria, as many obtained samples of less than $N = 200$ (Kline, 2005). A confirmatory factor analysis (CFA) would be more appropriate to develop new measurement tool, especially when there are well-developed conceptual frameworks and empirical evidences in the extant literature (Byon & Zhang, 2010).

Based on the aforementioned issues, the current study investigated perceived social impacts of hosting sport tourism events through dividing into two dimensional structures: (1) positive social impacts and (2) negative social impacts. First, positive social impacts dimension consisted of six initial constructs: (1) infrastructure and urban development; (2) economic benefits; (3) community consolidation; (4) socio-cultural exchange; (5) community visibility and image enhancement; and (6) knowledge and entertainment opportunity. Second, negative social impacts dimension consists of five initial constructs: (1) economic costs; (2) traffic problems; (3) security risks; (4) environmental concerns; and (5) social conflict (see Fig. 1). This purpose is intended to contribute to the social impact literature by integrating additional theoretical underpinnings, and by investigating environmental concerns and security, the article adds previously unmeasured dimensions (see Fig. 2).

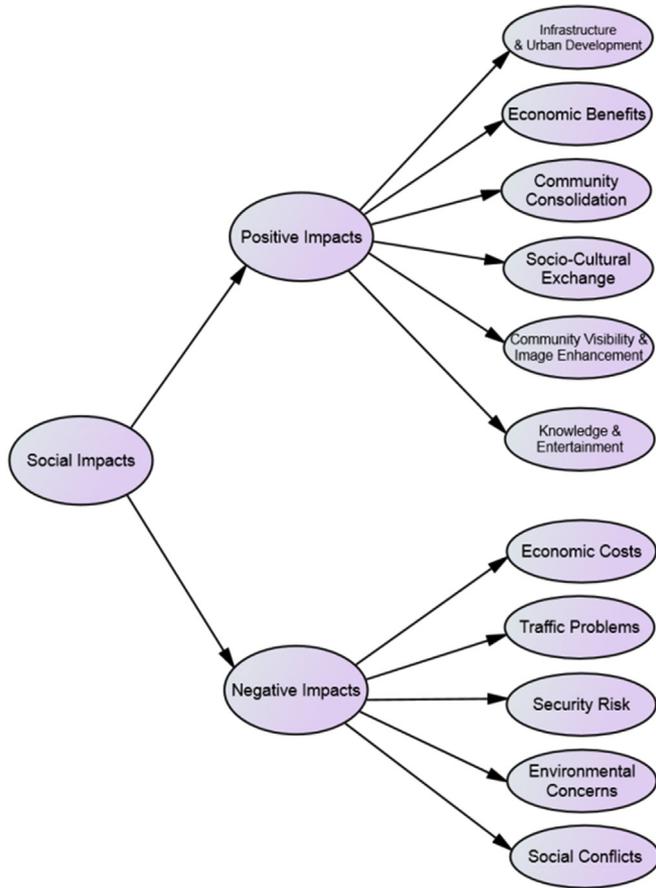


Fig. 1. Proposed model of the scale of perceived social impacts.

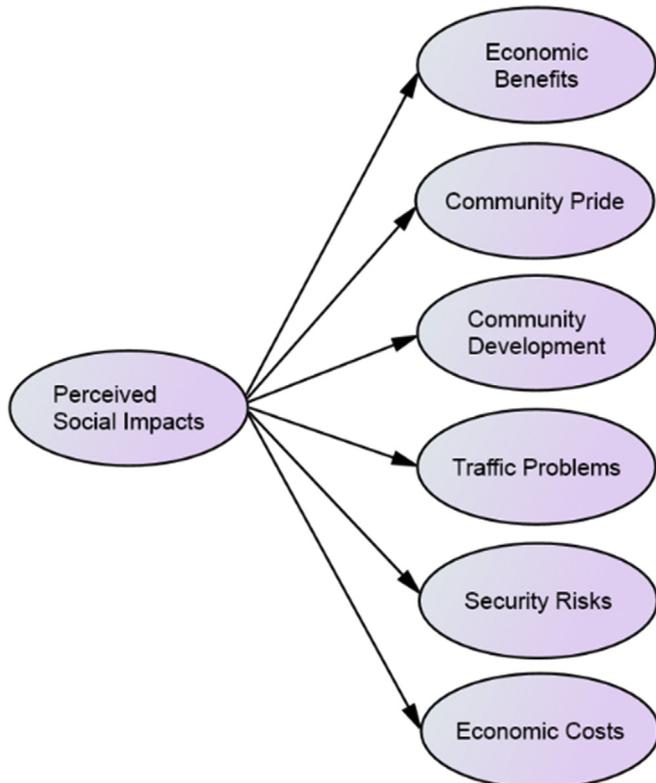


Fig. 2. Retained a six-factor model of the SPSI.

5. Method

5.1. Item generation

This study adopted an interdisciplinary approach emphasized by a review of the literature, as well as scale development procedures for measuring perceived social impacts (Bearden, Netemeyer, & Teel, 1989; Delamere, 2001; Kim & Walker, 2012; Lankford & Howard, 1994; Mayfield & Crompton, 1995; McDougall & Munro, 1994; Weed, 2005). Three main steps for developing new items for a Scale of Perceived Social Impacts (SPSI) were followed. First, a comprehensive list of the social benefits and costs of large-scale sport tourism events was used for item generation. All items were evaluated through both focus group interviews and a panel of experts to enhance clarity, relevance, and effectiveness (Babbie, 1992). As a result, eleven factors were deemed representative of the positive and negative social impact dimensions. Second, scale items were tested through a pilot study using convenience samples of graduate students from a large-size public university in the Southeastern Region of the United States. A total of $N = 50$ questionnaires were collected and purified by using Cronbach's alpha and item-to-total correlations in order to assess reliability. After the initial purification, the retained items were verified in order to develop a standardized measurement and articulation of the perceived social impacts. The SPSI consisted of two sections: (1) perceptions of positive and negative social impacts, and (2) socio-demographic characteristics.

5.2. Procedure

Face and content validity of the preliminary questionnaire was assessed through a focus group and a panel of experts. First, a focus group with six graduate students majoring in sport and tourism management was conducted in order to establish the list of social impact factors. Each participant comprehensively assessed a preliminary eleven-factor model under two dimensions based on their opinions. The interviewees then reported their opinions on the provided feedback forms to the researcher after their review so that the researcher could collect their suggestions to build more valid constructs.

Following the focus group, a panel of experts reviewed the revised questionnaire. Experts for this study included four university professors with acumen in sport and tourism management. Each panelist was asked to examine the relevance, representativeness, clarity, test format and wording, item content of the questionnaire, and other associated sections that have been recommended by previous research (Babbie, 1992). Based on feedback from the panel, the preliminary SPSI was modified, revised, and improved for enhancing clarity and face validity. After modification, a pilot study was undertaken to examining the content validity with the perspective of targeted population and assessing the reliability of the developed scales (Ary, Jacobs, Razavieh, & Corensen, 2006). Table 1 presents initial scale reliabilities and item diagnostics. A total of eight items (e.g., "enhanced conditions of local road systems", "increased local income", "increased local and national governments' debt") were eliminated based on Cronbach's alpha coefficients and related statistics.

The modified model, SPSI, for the main study was developed including eleven factors with 57 items: IUD (6 items), EB (5 items), CC (4 items), SCE (5 items), CVIE (7 items), KEO (5 items), EC (4 items), TP (5 items), SR (6 items), ENC (6 items), and SC (4 items). It should be noted that one factor, IUD, showed little lower Cronbach's alpha value ($\alpha = .653$) than the suggested cut-off (Lance, Butts, & Michels, 2006) in order to be utilized for further analyses. However, this factor was retained for further study because of

Table 1
Internal consistency of the pilot study ($N = 50$).

Factor	Cronbach's alpha (α)	
	Initial data	After item purification
Positive Impacts		
Infrastructure and urban development	.636	.653
Economic benefits	.722	.738
Community consolidation	.624	.755
Socio-cultural exchange	.728	.771
Community visibility and image enhancement	.836	.866
Knowledge and entertainment opportunity	.830	.830
Negative Impacts		
Economic costs	.483	.717
Traffic problems	.833	.833
Security risks	.768	.768
Environmental concerns	.784	.784
Social conflicts	.669	.704

the exploratory nature of the pilot study and its limited number of participants. Following the pilot study, a retained questionnaire with 57 items was deployed.

5.3. Data collection

Data collection was conducted at hosting communities of F1 Korean GP including Mokpo-si, Yeongam-gun, Muan-gun, and Haenam-gun areas in the Republic of Korea. Because the questionnaires were collected in Korea, additional procedures to translate the questionnaire to Korean were implemented including: (1) forward translation, (2) synthesis, and (3) back translation (Su & Parham, 2002). First, forward translation was conducted by two independent bilingual translators. Next, two independent questionnaires were thoroughly compared by two translators so that they could locate any translation errors (i.e., incorrect wording, using ambiguous terms). Finally, the back translation was conducted by newly recruited bilingual graduate students. The students were asked to retranslate the questionnaire into the original language (English) so the researcher could compare the accuracy and equivalence of the translated questionnaire.

We adopted the recommendations of Hair, Black, Babin, Anderson, and Tatham (2006) and Kline (2005) to determine appropriate sample size. Based on the recommendation, the target sample size was at least 10 respondents per each observed variable. With respect to this recommendation, data were collected from a total of $N = 1640$ respondents. Of those questionnaires, $n = 78$ were discarded due to missing values and reporting more than 90% of same answers across items, which yielded $N = 1567$ questionnaires for the main analyses. The data were collected by utilizing a spatial-location method from local residents of the host community. Multiple data collections were conducted at various public areas including busy streets, shopping malls, public parks, bus stations, and other public areas. Thirty-two trained researchers and graduate students were recruited to assist with data collection.

5.4. Data analyses

Data analyses for retaining the SPSI proceeded in a step-wise manner. Initially, the sample was randomly split in order to conduct both the EFA and CFA. The first half of the data ($n = 784$) was analyzed by using an EFA via principal axis factoring (PAF) with the Varimax Rotation. The EFA result provided comprehensive information regarding the number of factors based on eliminating and/or combining items and dimensions for representing more valid factor structure (Mitchell & Grotorex, 1993). Bartlett's Test of

Sphericity (BTS) value and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy value were evaluated (Kaiser, 1974). First, the current study used the Kaiser criteria to identify a factor that has an eigenvalue greater than or equal to 1 (Meyers, Gamst, & Guarino, 2005). Second, factor loadings had to be at least equal to or greater than .40 to be retained. Third, the current study only retained factors with at least three items, per the suggestions of prior research (Little, Lindenberger, & Nesselroade, 1999; Raubenheimer, 2004; Velicer & Fava, 1998). In addition, any double-loaded items were deleted. Fourth, the scree plot with the resulting curve was used to determine the factors compared to factor loadings from EFA outputs (Cattell, 1966; Schumacker & Lomax, 2010). Lastly, the identified factors and items should be theoretically interpretable. Following the EFA, internal consistency reliability was examined for the identified factors.

The second half of the data ($n = 783$) was used for the CFA by using the factor structure from the EFA. For the CFA, five steps, recommended by Tabachnick and Fidell (2001), were followed: (1) model specification; (2) identification; (3) model estimation; (4) testing model fit; and (5) model re-specification. Using the recommendation of Hair et al. (2006) and Jaccard and Wan (1996), a variety of model fit indices were assessed, which included the chi-square statistic (χ^2), the normed chi-square (χ^2/df), the standardized root mean squared residual (SRMR), the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker–Lewis Index (TLI) (Bentler, 1990; Hu & Bentler, 1999; Schumacker & Lomax, 2010).

In order to acquire an adequate level of reliability and validity, and a proportion of variance in common, convergent validity test was conducted (Hair et al., 2006). Hence, the current study assessed standardized indicator loadings and the loading's significance based on examining theoretical justifications for each factor. Discriminant validity was also examined in order to assess whether or not a construct was distinct from the others. The rule of thumb for discriminant validity was the inter-factor correlation below .85 for this study (Kline, 2005). Two additional tests were conducted for testing discriminant validity including examination of the interfactor correlations and comparison of squared correlation with average variance explained (AVE) for all latent variables (Fornell & Larcker, 1981).

6. Results

6.1. Descriptive statistics

Respondents were 54% male, had a mean age of 30.25 years, and the majority (50%) resided in the region between 5 and 10 years. Descriptive statistics can be seen in Table 2. All 32 positive impact items had a mean score greater than 3.5 indicating that participants experienced positive social impacts and benefits from hosting F1 Korean GP. On the other hand, of the 25 items for negative social impacts, only one item (SR6) had a mean score lower than 3.50, which indicated the respondents experienced negative social impacts from hosting F1 Korean GP.

In addition to descriptive statistics, normality was examined through skewness and kurtosis values. This study used the recommended criteria by Chou and Bentler (1995) who suggested that items with a skewness greater than 3.0 point would be considered extreme. A total of 25 items were significantly skewed ($p < .01$) based on inspecting the equations for standard error of both skewness and kurtosis. According to Tabachnick and Fidell (2001), it is acceptable to interpret the shape of the distribution instead of inspecting formal inference (Z-scores) if the sample is large because the normality is often rejected. Thus, the current study did not modify and/or eliminate the 25 skewed items and retained for

Table 2
Descriptive statistics for social impacts variables ($N = 1567$).

Variable		M	SD	Skewness	Kurtosis
Positive social impacts variables					
<i>Infrastructure & urban development</i>					
1	Enhanced community beauty (IUD1)	4.28			
2	Increased shopping facilities (IUD2)	4.23	1.46	-2.64	-2.43
3	Increased leisure facilities (IUD3)	4.19	1.22	-2.87	3.22
4	Increased sanitation facilities (e.g., toilet) (IUD4)	4.25	1.36	-5.49	-0.11
5	Increased number of lodging facilities (e.g., hotels, guest house) (IUD5)	4.21	1.26	-2.38	1.84
6	Accelerated development of general tourism infrastructure (IUD7)	4.48	1.34	-6.72	.91
		4.35	1.27	-4.84	1.52
<i>Economic benefits</i>					
7	Increased trade for local business (EB1)	4.24			
8	Increased employment opportunities (EB2)	4.21	1.31	-3.44	.39
9	Increased community development investments (EB3)	4.10	1.38	-3.02	-.98
10	Improved economic conditions (EB4)	4.22	1.36	-3.62	.37
11	Accelerated community growth (EB6)	4.26	1.36	-3.46	-.80
		4.39	1.34	-3.93	.84
<i>Community consolidation</i>					
12	Enhanced the community pride of local residents (CC1)	4.12			
13	Reinforced community spirit (CC2)	4.29	1.33	-4.30	.43
14	Enhanced social unity of the community (CC4)	4.07	1.34	-.80	-.26
15	Enhanced the sense of being a part of community (CC6)	4.06	1.28	-1.56	2.72
		4.06	1.27	-2.28	.49
<i>Socio-cultural exchange</i>					
16	Increased number of cultural events (SCE1)	4.34			
17	Increased the understanding of the other cultures and societies of visitors (SCE3)	4.42	1.28	-4.56	1.07
18	Provided an incentive for the preservation of the local culture (SCE4)	4.49	1.26	-5.77	1.41
19	Provided residents opportunity to meet new people (SCE5)	3.96	1.30	-1.74	.05
20	Increased interest in international sport events (SCE6)	4.29	1.33	-4.92	-.08
		4.57	1.35	-6.54	.40
<i>Community visibility & image enhancement</i>					
21	Increased opportunity to inform hosting community in the world (CVIE1)	4.61			
22	Increased opportunity to inform hosting community in Korea (CVIE2)	4.72	1.39	-7.72	.48
23	Enhanced media visibility (CVIE3)	4.74	1.38	-7.00	.53
24	Improved the image of Mokpo and Yeongam Counties (CVIE4)	4.79	1.31	-6.57	1.17
25	Enhanced international recognition of hosting community (CVIE6)	4.46	1.32	-6.61	1.70
26	Increased community identity in the country (CVIE7)	4.75	1.36	-6.90	.25
27	Generated a prestigious image regarding racing sport (CVIE8)	4.28	1.30	-3.79	.29
		4.55	1.37	-5.34	.10
<i>Knowledge & entertainment opportunity</i>					
28	Increased the opportunity of enjoying racing sports (KEO1)	4.38			
29	Increased volunteering opportunity (KEO2)	4.40	1.39	-4.75	-.59
30	Provided learning opportunity of a new sport (KEO3)	4.49	1.31	-5.21	1.11
31	Provided a high quality of entertaining opportunity (KEO4)	4.35	1.37	-5.49	.11
32	Generated excitement to the host community (KEO5)	4.32	1.35	-4.85	-.68
		4.32	1.31	-5.66	.75
Negative social impacts variables					
<i>Economic costs</i>					
1	Excessive spending on new infrastructure for the event (EC1)	4.43			
2	Excessive spending for building the Korean International Circuit (EC2)	4.55	1.36	-2.07	-1.75
3	Increased price of real estate (EC3)	4.75	1.38	-4.18	-2.27
4	Increased product prices (EC4)	4.15	1.28	-2.57	1.89
		4.26	1.29	-1.62	.97
<i>Traffic problems</i>					
5	Resulted in traffic congestion (TP1)	4.23			
6	Increased hardship for finding parking spaces (TP2)	4.54	1.43	-4.62	-1.36
7	Increased problems for using public transportations (TP3)	4.40	1.43	-3.31	-1.59
8	Resulted in damage on local road due to increased traffic (TP4)	4.07	1.35	.10	-.07
9	Increased road closures/disruption (TP5)	4.07	1.30	.77	1.07
		4.38	1.37	-2.41	-1.65
<i>Security risks</i>					
10	Increased crime (SR1)	3.63			
11	Increased risk of terrorism (e.g., bomb threat) (SR2)	3.56	1.32	2.70	1.02
12	Attracted interests of terrorists for future events (SR3)	3.69	1.41	.82	1.28
13	Increased risk of cyber-attack (SR4)	3.81	1.37	-.34	-1.43
14	Increased disturbance from visitors (e.g., hooligans, disorder, and vandalism) (SR5)	3.68	1.34	-.05	-.30
15	Increased psychological anxieties due to security risks/concerns (SR6)	3.71	1.37	.54	-1.32
		3.36	1.43	1.87	-3.11
<i>Environmental concerns</i>					
16	Increased the amount of litter and waste (ENC1)	4.13			
17	Increased air pollution (ENC2)	4.31	1.36	-4.21	.30
18	Increased noise levels (ENC3)	4.11	1.38	-1.75	-1.00
19	Urban development will be negatively affected long-term (ENC4)	4.43	1.35	-1.59	-1.01
20	Construction of new facilities increased pollution (ENC5)	3.76	1.36	.90	-.92
21	Caused environmental damage to local community (ENC6)	4.07	1.36	-2.28	-.20
		4.13	1.36	-2.97	-.01
<i>Social conflicts</i>					
22	Local residents were not a primary consideration for the event (SC1)	4.07			
23	Disrupted the lives of local residents (SC2)	4.50	1.32	-3.59	.60
24	Brought conflicts and antagonism between visitors and local residents (SC4)	3.96	1.26	-.16	2.52
25	Increased social conflicts between supporters and non-supporters (SC5)	3.69	1.29	1.43	.77
		4.13	1.36	-1.75	1.12

further analyses. All kurtosis values had lower than the cutoff value of 3.0 except only two items (i.e., SR6 and EC2). After careful consideration of theoretical justification and other criteria, the researcher determined to retain the two items for this study.

6.2. Exploratory factor analyses

Two separate EFA's were conducted. Dividing social impacts into two dimensions should decrease the chance of distorted results due to the direction of sign and inconsistency of meaning among items in the same dimension. Utilizing the first data set, an EFA was used to identify and purify the latent factor structure and reduce the data for the two dimensions. For the positive social impact dimension, the KMO measure of sampling adequacy value was .97 and the BTS was 14154.29 ($p < .001$) indicating the sample was appropriate to conduct a factor analysis. As a result of PAF with varimax rotation, four factors with 24 items were identified, explaining 50.61% of the variance. In contrast, the scree plot indicated only three factors and further examination was warranted. Six items (i.e., CVIE6, EB2, IUD7, KE01, CVIE8, and CVIE2) were discarded due to double loading. An additional two items (i.e., IUD4 and EB6) were discarded because their loadings did not exceed the .40 criteria. One factor consisting of KE04, SCE5, and CVIE7 was removed because its loading onto a factor did not have appropriate theoretical justification. In addition, one item (i.e., IUD2) was discarded due to theoretical justification. Therefore, three factors with 20 items emerged from the EFA: community development and image enhancement (7 items, $\alpha = .89$), community consolidation (7 items, $\alpha = .85$), and economic benefits (6 items, $\alpha = .85$). Overall, the resolved factor structure represented consistency with the conceptual model. It should be noted that some items loaded on the other factors compared to conceptual model, which will be discussed later.

For the negative social impact dimensions, the KMO measure of sampling adequacy value was .94 and the BTS was 7659.40 ($p < .001$). The KMO value and the BTS value indicated that the sample was appropriate for a factor analysis. As a result of PAF with varimax rotation, four factors with 22 items were identified, explaining 46.34% of the variance. However, the results of the scree plot test indicated a three-factor model rather than four-factor model. As such, further analyses were required to reduce the model. One factor consisting of EC4, EC3, and ENC3 was removed because of theoretical justification. In addition, one item (i.e., SC5) was removed due to its poor fit with other items and theoretical justification. As a result, the final three-factor model with 19 items was identified. Three factors were named security and environmental concerns (11 items, $\alpha = .89$), economic costs (4 items, $\alpha = .71$), and traffic problems (4 items, $\alpha = .80$). The reduced factor structure was not adequately represented by the conceptual model for negative social impacts (i.e., merging into one factor instead of staying as an individual factor).

6.3. Confirmatory factor analyses

The second half of the data set ($n = 783$) was used for conducting a CFA, which was performed through a series of steps: (1) model specification, (2) identification, (3) model estimation, (4) testing model fit, and (5) model re-specification (Tabachnick & Fidell, 2001). The six-factor model consisting of both positive and negative social impacts factors with total of 39 items was subjected to a CFA. Goodness of fit indices showed the six-factor model did not fit the data. The chi-square statistics for the initial model was significant ($\chi^2 = 2610.83$, $p < .001$) indicating that there was a statistically significant difference between the preliminary model and the observed model. In addition, the normed chi-square value

($\chi^2/df = 3.80$) was above the recommended cutoff value of less than 3.0 (Bollen, 1989). The RMSEA also indicated a reasonable fit for the six-factor model (RMSEA = .060; Hu & Bentler, 1999; Loehlin, 2004), while the SRMR (.063) was within acceptable fit range ($< .08$; Kline, 2005). However, the CFI (.86) was below the cutoff value ($> .90$) and the TLI (.85) was also below the suggested cutoff value ($> .90$).

It is common that an initial measurement model fails to obtain an acceptable fit. Therefore, model respecification should be conducted to achieve an adequate fit (Meyers et al., 2005). This study executed the model respecification using chi-square difference test and model fit indices (e.g., factor loading values, coefficient values, standardized residual covariance, and the tests of fit indices). During model respecification, the researcher deliberately avoided improving the model fit with linking items to multiple factors and controlling the correlation of error terms (Anderson & Gerbing, 1988). It is widely known that the correlation of error terms would provide much improved model fit, however, it would also cause less interpretability of the retained model from a theoretical perspective (Bagozzi, 1983; Gerbing & Anderson, 1984). The factor loading of each indicator should be at least equal or greater than .70 to provide a high level of convergent validity (Anderson & Gerbing, 1988).

From the proposed model, a total of eight items including IUD5, CC4, TP3, ENC4, ENC5, ENC6, SR6, and SC5 were removed initially in order to enhance the convergent validity. These eight items had substantially lower item factor loading values (ranging from .47 to .59) than the .70 cutoff suggested by Anderson and Gerbing (1988). The remaining six-factor model with 31 items was submitted to a CFA using ML estimation (Hair et al., 2006). While the goodness of fit indices produced the six-factor, the modified model with 31 item did not fit the data. The 31 item-model was statistically significant ($\chi^2 = 1444.14$, $p < .001$), while the normed chi-square value ($\chi^2/df = 3.45$) had greater than the recommended cutoff value of less than 3.0 (Bollen, 1989). In addition, the RMSEA value (.06) showed a reasonable fit, the SRMR (.048) was within acceptable range ($< .08$; Kline, 2005), and the CFI (.91) and TLI (.90) were adequate. The modification indices indicated that three items (IUD5, SC2, and SC4) had lower factor loadings (.57–.59) and greater standardized residuals (4.21–4.56) than its criteria (Joreskog & Sorbom, 1996). These items were removed to improve model fit and interpretability.

The remaining six-factor model with 28 items was again subjected to a CFA. However, the modified model with 28 items did not show significant fit improvement ($\chi^2 = 1105.43$, $p < .001$, $\chi^2/df = 3.30$, RMSEA = .054, SRMR = .044, CFI = .92, and TLI = .91). The researchers carefully examined the model assessing modification indices, inter-factor correlations, indicator loadings, and also considering theoretical justification so that the model can have substantial interpretability. Five items including KE02 (“increased volunteering opportunity”), KE03 (“provided learning opportunity of a new sport”), KE05 (“generated excitement to the host community”), SCE1 (“increased number of cultural event”), and SR1 (“increased crime”) were removed after comprehensive examination of both statistical and theoretical interpretability. Consequently, a six-factor model with 23 items provided a better fit to the data ($\chi^2 = 620.73$, $p < .001$), and the normed chi-square ($\chi^2/df = 2.89$) was lower than the recommended 3.0 value (Bollen, 1989). The RMSEA indicated that the current model recorded a good fit (RMSEA = .049, 90% confidence interval = .045–.054; Hu & Bentler, 1999). The SRMR value (.043) was less than cutoff value of .08 (Kline, 2005). The CFI value (.95) was good, and the TLI (.94) was acceptable indicating an adequate fit (Hu & Bentler, 1999). In addition, chi-square difference tests were conducted and resulted statistically significant. A retained six-factor model with 23 items

consisted of economic benefits, community pride, community development, economic costs, traffic problems, and security risks. Minor changes were made to reflect adequate conceptual justification by the name of factors (i.e., security and environmental concerns to security risks). Each factor in the retained model also consisted of at least three items so that they could become an individual factor appropriately (Bollen, 1989; Kline, 2005; Meyers et al., 2005). Table 3 presents the model fit comparison of four distinct examined models.

Despite careful consideration and statistical modification, factor loadings for six items were marginally lower than the cutoff value of .70 (Anderson & Gerbing, 1988). However, the current study retained these items due to the careful consideration of theoretical relevance and evidence from existing studies. Under the positive social impacts dimension, items in the economic benefits had factor loadings from .67 to .81, while community development had loadings of .74–.76 and community pride had loadings of .68–.72. Additionally, security risks showed factor loadings that ranged from .72 to .79 followed by traffic problems (.63–.82) and economic costs (.60–.71) in the negative social impacts dimension.

Reliability tests for the perceived social impacts factors was examined by assessing Cronbach's alpha coefficient (α), construct reliability (CR), and average variance extracted (AVE) values (Table 4). The Cronbach's alpha values for the perceived social impacts factors recorded were above .70 recommended threshold (Hair et al., 2006) except economic costs factor ($\alpha = .691$). However, this study retained the economic costs factor based on previous recommendation by Nunnally (1978). According to Nunnally (1978), the coefficient alpha value in the range from 0.6 to 0.7 could be deliberated as the minimum acceptable level of reliability for the preliminary research; therefore, the economic costs factor remained in the SPSS.

The CR values for all perceived social impacts factors were well above the rule of thumb threshold of .70 (Fornell & Larcker, 1981). Lastly, the AVE value for the perceived social impacts factors recorded from .43 to .56. In particular, five factors of community development (.56), traffic problems (.56), security risks (.56), and economic benefits (.55) were above the recommended .50 threshold (Bagozzi & Yi, 1988). However, community pride (.49) and economic costs (.43) were lower than its recommended .50 threshold (Bagozzi & Yi, 1988). According to Hatcher (1994), when the construct reliability was acceptable marginally low value of the AVE could be accepted (see Table 4). Thus, a decision was made to retain these factors without combining into other factors due to the theoretical relevance and justification.

In addition, discriminant validity was examined through analyzing inter-factor correlations values (Table 5). The result indicated that all inter-factor loadings were sufficiently below the recommended threshold (.85) by Kline (2005) ranging from .01 (security risks and community development) to .76 (community pride and community development). Although most of the factors had statistically significant correlations, correlation among 'security risks' – 'community development' (.01, $p = .827$), 'economic costs' – 'community pride' (.07, $p = .177$), and 'economic benefits' – 'economic costs' (.06, $p = .224$) did not result in statistically significant relationships. These results could mean that respondents

Table 3
Model fit comparison for the second data set ($n = 783$).

Model	χ^2	df	χ^2/df	RMSEA	SRMR	CFI	TLI
6-Factor, 39 items	2610.83	687	3.80	.060	.063	.85	.86
6-Factor, 31 items	1444.14	419	3.45	.056	.048	.91	.90
6-Factor, 28 items	1105.43	335	3.30	.054	.044	.92	.91
6-Factor, 23 items	620.73	215	2.89	.049	.043	.95	.94

Table 4
Final model's factor loadings (λ), Cronbach's alpha (α), CR, and AVE extracted for the second half data set ($n = 783$).

Factors	λ	α	CR	AVE
<i>Community Development (5 items)</i>				
Increased the understanding of the other cultures and societies of visitors	.76	.87	.86	.56
Increased interest in international sport events	.75			
Increased opportunity to inform hosting community in the World	.74			
Enhanced media visibility	.74			
Improved the image of Mokpo and Yeongam Counties	.74			
<i>Community Pride (4 items)</i>				
Enhanced the community pride of local residents	.68	.80	.79	.49
Enhanced the sense of being a part of community	.70			
Provided an incentive for the preservation of the local culture	.69			
Reinforced community spirit	.72			
<i>Economic Benefits (4 items)</i>				
Increased trade for local business	.73	.83	.83	.55
Improved economic conditions	.81			
Increased leisure facilities	.76			
Increased community development investments	.67			
<i>Traffic Problems (3 items)</i>				
Increased road closures/disruption	.63	.78	.79	.56
Resulted in traffic congestion	.79			
Increased hardship for finding parking spaces	.82			
<i>Security Risks (4 items)</i>				
Increased risk of terrorism (e.g., bomb threat)	.75	.85	.84	.56
Attracted interests of terrorists for future events	.72			
Increased risk of cyber-attack	.79			
Increased disturbance from visitors (e.g., hooligans, disorder, and vandalism)	.74			
<i>Economic Costs (3 items)</i>				
Excessive spending on new infrastructure for the event	.71	.69	.70	.43
Excessive spending for building the Korean International Circuit	.66			
Local residents were not a primary consideration for the event	.60			

might have substantially different attitudes toward the perceived social impacts of hosting F1 Korean GP based on their own evaluation for the exchanged values.

7. Discussion

Hosting a large-scale sport tourism event produces both economic and socio-psychological impacts to host communities. Still, a great deal of interest has been placed on the economic side of hosting decisions with little attention paid to intangible social impacts. Unlike economic impacts, social impacts of hosting large-scale sport tourism events are somewhat difficult to quantify. For this reason, investigating perceived social impacts have been either ignored or performed in an *ad hoc* manner, which has yielded inconsistent results (Kim et al., 2006; Kim & Walker, 2012). Therefore, this study attempted to comprehensively evaluate a conceptual framework using a Triple Bottom Line approach

Table 5
Interfactor correlations from the confirmatory factor analysis ($n = 783$).

	EB	CP	CD	TP	SR	EC
EB	1.0					
CP	.73***	1.0				
CD	.74***	.76***	1.0			
TP	.17***	.10*	.15***	1.0		
SR	.23***	.13**	.01	.47***	1.0	
EC	.06	.07	.26***	.51***	.36***	1.0

Note. * $p < .05$, ** $p < .01$, and *** $p < .001$.

including social, economic, and environmental analyses. This process resulted in the development of a multidimensional measurement scale of local residents' perceived social impacts toward hosting a sport tourism event. Moreover, the current study endeavored to fill the void in the tourism literature through developing a conceptual framework with careful reflection of the large-scale sport tourism event.

The resulting SPSI can be used in the future to assess multidimensional aspects of residents' perceived social impacts derived from hosting large-scale sport tourism events in a range of community contexts. The importance of understanding social impacts has ascended from existing studies from interdisciplinary contexts. Social impacts could be more realistic benefits and concerns by various stakeholders (i.e., local residents, visitors) because monetary impacts have been proved as not realistically beneficial to the hosting community and country. The results of this study partially answered the hypothesized structure of perceived social impacts associated with hosting large-scale sport tourism events. Descriptive statistics indicated that the overall mean score of positive social impacts dimension was 4.33, while the mean score of negative social impacts dimension was 4.10. The results of preliminary factor model revealed that community visibility and image enhancement had the highest mean score ($M = 4.61$; $SD = 1.00$), followed by knowledge and entertainment opportunity ($M = 4.38$; $SD = 1.00$). The lowest mean score of positive social impacts was community consolidation ($M = 4.12$; $SD = 1.00$), followed by economic benefits ($M = 4.24$; $SD = 1.03$). To event planners and administrators, these results have critical implications that positive social impacts of large-scale sport tourism events (i.e., community visibility and image enhancement and knowledge and entertainment opportunity) are more important benefits compared to positive economic impacts of the events.

On the other hand, economic costs had highest mean score ($M = 4.43$; $SD = .85$), followed by traffic problems ($M = 4.23$; $SD = 1.05$) among the negative social impacts. Security risks had lowest mean score ($M = 3.63$; $SD = 1.04$) among negative social impacts constructs followed by social conflicts ($M = 4.07$; $SD = .92$). Hosting large-scale events causes an excessive amount of spending on unexpected infrastructure and venue development and it is likely to cause the price inflation and increased local taxes (Deccio & Baloglu, 2002). Previous research has indicated consistent results on negative social impacts with economic costs and traffic problems as main factors that were also consistent with the current study. These negative impacts can trigger lower levels of support from residents (Ritchie, 1984; Witt, 1988). Sport and tourism marketers should realize that hosting events not only produces positive impacts but also causes negative impacts. Overall, respondents recorded that higher levels of positive social impacts were produced from this particular event compared to negative social impacts, which are consistent with the previous research (Kim et al., 2006; Kim & Petrick, 2005; Waitt, 2003).

Factor analyses validated the psychometric properties of the SPSI and provided evidence of adequate construct validity. Initially, economic benefits and infrastructure and urban development were separately indicated from the EFA. However, these dimensions were merged into economic benefits. This combined factor may be interpreted as the local residents' affirmative beliefs toward economic benefits, infrastructure development, and related development may result in improved economic conditions for their community (Kim & Walker, 2012). Hosting large-scale sport tourism events can be a part of community urbanization through development of venues and local road systems. Thus, residents may perceive these benefits to accrue in both the short- and long-term. Previous studies (see Kim et al., 2006; Kim & Petrick, 2005)

identified these factors separately even with additional constructs (i.e., tourism infrastructure development and/or tourism resource development). Therefore, this finding should be further validated through additional studies in multiple contexts.

Two factors related to community enhancement and increasing the opportunities of socio-cultural exchanges were nested in one factor as community development. This may have resulted because F1 Korean GP was a unique event in Korea. Image enhancement and social interactions were assessed separately from previous studies (Delamere, 2001; Fredline & Faulkner, 2001; Kim et al., 2006; Kim & Petrick, 2005; Kim & Walker, 2012). Based on this, further evaluation of the items and theoretical justification with an adequate level of discriminant validity should be conducted. Crompton (2004) discussed that image enhancement and increased visibility as economic attributes, however, the current study indicated that community development through image enhancement and increased learning opportunities could extend beyond pure economic benefit. Community consolidation was also renamed community pride, which was established as a sole construct of the SPSI from the CFA's. Respondents indicated that hosting this event resulted in the promotion of community unity and a sense of being in the community. Existing studies revealed that hosting such large-scale events can enhance the sense of being a part of the community of the local residents (Delamere, 2001), because they bring awareness to a particular region and access to the region's culture (Deccio & Baloglu, 2002; Goeldner & Long, 1987).

Recently, local resident perceptions of negative social impacts have garnered more attention from sport tourism and general tourism research (Kim & Petrick, 2005). Three negative social impact factors were revealed, which conforms to previous findings (Delamere, 2001; Dodouras & James, 2002; Fredline & Faulkner, 2001; Hiller, 2006; Kim et al., 2006; Kim & Petrick, 2005; Konstantaki & Wickens, 2010; Witt, 1988). In particular, we found that local residents perceived hosting the event would result in security risks (i.e., terror threat, increasing crime). Previous studies on security and risk management suggested that such concerns have ascended from visitors and residents of the events (Hall, 2010; Hall, Marciani, & Cooper, 2008; Taylor & Toohey, 2007). Due to the popularity and media attention given to large-scale sport tourism events, attention from terrorists have become increasingly commonplace (Essex & Chalkley, 1998). Therefore, event planners and administrators should provide a strategic plan for managing these risks and mitigate the high level of negative attitudes toward hosting the event from event stakeholders.

Sustainability issues are also among the more critical concerns of hosting. However, this study indicated inconsistent results that residents did not record environmental concerns as a valid factor. While Deccio and Baloglu (2002) showed that hosting events are likely to bring more attention to the natural environment, the results of this study did not indicate more attention toward environmental risks. Consequently, further inquiry into this dimension is warranted since environmental concerns have been indicated as critical to local event stakeholders (Konstantaki & Wickens, 2010). In addition, economic costs were the main concern of hosting large-scale sport tourism events by local residents. In particular, respondents reported that their opinions were ignored during event planning and developmental processes. This might be attributed to the lack of residents' involvement in the F1 Korean GP decision-making process. Lastly, traffic problems were found as one of the worst social impacts derived from hosting F1 Korean GP, which was consistent with previous social impact studies (Hall, 1997; Jeong, 1998; Kim et al., 2006; Kim & Petrick, 2005; Waitt, 2003). In fact, traffic problems simply cannot be avoided due to the unique nature of large-scale sport tourism events (Kim et al., 2006).

There has been growing attention on examining community residents' socio-psychological benefits of hosting large-scale sport tourism events (Kim & Petrick, 2005; Kim & Walker, 2012). However, exploring a multi-dimensional nature of residents' perceived social impacts from hosting events has been somewhat ignored (Teye et al., 2002). In the future, event planners and administrators should understand the residents' concerns about excessive costs of developing new infrastructure and venues and provide better strategic plans to utilize the financial resources with less concern from local residents. From an academic standpoint, this study has contributed to fill the void of research on local residents' perception on social impacts toward hosting large-scale sport tourism events. In particular, the current study provided a methodological contribution to better measure residents' perceived social impacts using standardized scale development procedures. Further studies need to be conducted in order to validate the SPSI based on assessment through diverse contexts.

8. Limitations and future research suggestions

This study developed a valid and reliable instrument for measuring local residents' perceived social impacts from hosting large-scale sport tourism events. However, the study is not without its limitations. First, the six-factor model indicated an adequate level of reliability and validity for measuring the perceived social impacts of residents toward hosting large-scale sport tourism events, slightly lower levels of reliability and discriminant validity were also reported. Future studies should test possible modifications to and validation of the SPSI based on theoretical criteria and independent data sets from varying contexts so the final SPSI can be retained. Second, participants in this study had fairly high levels of negative perceptions toward the hosting F1 Korean GP, which could result in developing higher level of perceived negative social impacts. In addition, the use of an event to assess perceived social impacts derived from hosting sport tourism events would not be appropriate to be generalized to other contexts and populations. According to Waitt (2003), perceived social impacts and assessment of exchanged value are likely to be different across socio-demographic characteristics. Therefore, the results herein may not be generalized to other events and populations. For future research, it would be valuable to assess a variety of contexts (i.e., mega-sport tourism events, community sport tourism events) in order to provide managerial insight for sport and tourism marketers based on comprehensive understanding of residents' affirmative attitudes.

Third, while the initial 11 factors were regarded as perceived social impacts as a result of a comprehensive literature review, only six factors were retained. This might be the reason that this study relied heavily on statistical procedures in order to purify and reduce the dimensions of the SPSI. Several factors were discarded due to ambiguous factor justification (i.e., similarity and lack of theoretical justification). Lastly, while this research endeavor was to develop the SPSI, the scale should be concurrently validated by examining its relationship to various related constructs such as government support, behavioral intentions, social capital, and psychic income. This approach will yield help future researchers determine the applicability of the scale in differing contexts, events, and nations.

In sum, future research is required to further validate the conceptual framework and theoretical justifications. In other words, future studies should be conducted for revision of conceptual frameworks and factor development in order to provide a more clear and constant structure of psychometric construct of social impacts. Although the six-factor model did show improved model fit, the reliability issues can be a crucial factor for implementing the SPSI to other events and populations. Therefore, future research

should be emphasized on exploring more comprehensive constructs regarding social impacts including security risks, sustainability issues, and also various socio-psychological benefits (i.e., political impacts, sport-specific outcome).

Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.tourman.2014.10.015>.

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