

Involvement, Social Impacts and Subjective Well-Being: Brazilians' Experiences from Rio 2016 Olympic and Paralympic Games

Marijke Taks, University of Ottawa, Canada

Claudio Rocha, University of Stirling, UK

Abstract

As primary funders of sport mega-events, host country residents deserve to reap benefits. Subjective well-being (SWB) can be one such positive outcome. Research analyzing the relationship between sport events and SWB is limited, and results are ambiguous. This study examines the effects of social impact experiences from the Rio 2016 Olympic and Paralympic Games (Rio2016) on SWB of host country residents, considering attitudinal involvement with the event. Using a cohort longitudinal design, data were collected during (n=402) and six months after (n=401) the event. Attitudinal involvement was significantly related to most factors of social impact experiences during, but not after Rio2016. Social impact experiences were low during and even lower after Rio 2016, not contributing significantly to SWB of Brazilians. SWB was high during and after Rio2016, but not significantly different between these moments. Rio2016 did not affect the SWB of residents.

Keywords: feel-good effect, Olympics, psychic income, social capital, sport mega-events

Involvement, Social Impacts and Subjective Well-Being: Country Residents' Experiences from Rio 2016 Olympic and Paralympic Games

Host country residents are primary funders of sport mega-events and deserve a return on their investment. In the absence of substantial economic outcomes, researchers have shifted their attention to social impacts of sport mega-events (Gibson et al., 2014). Subjective well-being (SWB) can potentially be a positive, intangible return outcome of sport mega-events for host country residents. SWB has been defined as an evaluation people make about their own lives in terms of different subjective components, such as happiness, life satisfaction, and positive affects (Diener, 2000). Some studies have analyzed how social impacts of sport events may impact people's lives in host (Fredline et al., 2006) and non-host cities (Liu et al., 2014).

Notwithstanding a recent publication by Jepson and Walters (2021) on events and well-being, the relationship between sport events and SWB has received little research attention, and has presented ambiguous results (Kavetsos & Szymanski, 2010; Schlegel et al., 2017). It is still unclear whether social impact experiences associated with a sport event can affect perceptions of SWB. This study lends evidence to further explore this relationship.

Researchers have identified various social antecedents of SWB outcomes, hypothesizing that sport mega-events might create psychic income and social capital in host communities (Chalip, 2006; Oja et al., 2018). Psychic income relates to community and event-related excitement and pride (Gibson et al., 2014). Social capital is a complex and contested concept, and based on various theoretical perspectives (see Peachey and colleagues (2015) for an overview of three dominant theoretical perspectives). For the purpose of this contribution, we rely on Putnam's (2000) conceptualization of social capital, which stated that sport (including events) enhances social capital formation by creating opportunities for people to connect with

each other in an inclusive manner, by prompting discussions among community members, and bringing citizens together through conversations. However, there is no unified way to define and measure psychic income and social capital from events, and outcomes are diverse and inconsistent (Taks et al., 2020).

We draw on Social Anchor Theory (SAT; Clopton & Finch, 2011; Oja et al., 2018) to explain how hosting sport mega-events can work as a social anchor from which social experiences can be derived. To that end, we further unpack the concepts of psychic income and social capital and propose a set of indicators to measure these social manifestations in terms of event-related experiences to test whether these social manifestations would lead to SWB of host country residents. In addition, various authors found a positive relationship between the level of attitudinal involvement with an event and the social experiences generated by the event (Beaton et al., 2011; Oja et al., 2018). Thus, to establish a relationship between a sport mega-event (anchor), social experiences, and SWB, attitudinal involvement with the event should also be considered.

The 2016 Olympic and Paralympic Games in Rio de Janeiro, Brazil (labeled as “Rio2016” hereafter) provided the context of the study for different reasons. Brazil used the FIFA 2014 World Cup as well as Rio2016 to foster the country’s position as a leader in Latin America and a serious player in the global market. Despite some economic growth in the last decade, Brazil has struggled to keep acceptable social and human living conditions for its population (Rocha et al., 2017). Therefore, hosting these sport mega-events generated a lot of opposition, and triggered protests, riots, and strikes countrywide (Rocha et al., 2017), as has been the case in other countries hosting mega-events (Maharaj, 2015). For Brazil, these social manifestations were associated with the fact that large sums of public money were invested in

the sport events, rather than in much needed basic infrastructure and services for the Brazilian population as a whole (Rocha, 2020). As such, it is reasonable to believe that not all country residents have been positively involved with the event. This could have negatively affected their social impact experiences from the event, which, in turn, could have negatively impacted their SWB. Rio2016 is a good example of an Olympic Games affecting a whole country (e.g., Toohey & Veal, 2007) and not only the host city . Large amounts of federal money were invested in the infrastructure of the city as preparation to host (Richmond & Garmany, 2016). While negative impacts such as traffic disruption, real estate speculation, and displacements tend to be centralized in the host city, other externalities (Downward et al., 2009), both positive (pleasure of watching) and negative (lack of resources for basic health services), cross the city's borders (Weimar & Rocha, 2019). Previous studies on the Olympic Games have indeed proposed a spillover effect of impacts and legacies for non-host city residents, mainly due to the gigantism of the Games in terms of costs and media attention (Deccio & Baloglu, 2002; Ritchie et al., 2009). Like residents in host communities who do not directly take part attending the event, residents from other cities in the host country can experience social impacts because of the spillover effects. Thus, the overall purpose of this study was to examine the effects of social impact experiences from the Rio2016 Olympic and Paralympic Games (Rio2016) on SWB of host country residents, taking into consideration attitudinal involvement with the event.

In what follows, we first introduce social anchor theory as our theoretical framework, followed by a literature review in which we elaborate on SWB, social manifestations and attitudinal involvement in the context of sports events. We then present the method and results, followed by a discussion and conclusion.

Social Anchor Theory

We draw on Social Anchor Theory (SAT; Clopton & Finch, 2011; Oja et al., 2018) to propose that hosting sport mega-events can work as a social anchor from which social experiences can be derived. Clopton and Finch (2011) informed that social anchors are any institution that acts as a catalyst for social capital development, which can happen mainly from connecting residents. This is consistent with the definition of bridging social capital, where people connect with each other in an inclusive manner, to participate and discuss topics that are of common interest (Putnam, 2000). Previous investigations have advocated for hosting sport mega-events as potential anchors to produce social capital (Gibson et al., 2014; Oja et al., 2018). In this sense, manifestations of social experiences become a central concept in bridging social capital via sport mega-events (Costanza et al., 2007; Eckhaus & Sheaffer, 2018). Indeed, mega-events can stimulate social interactions between host residents. The more people participate in social interactions, the more bridging social capital may be created. However, the effects of sport mega-events on social capital are inconsistent (Taks et al., 2020), and we have no clear understanding whether sport mega-events improve social experiences generated by the event. We also do not know whether such experiences can improve feelings of SWB.

Oja and colleagues (2018) used SAT to investigate social impact from the 2012 Major League Baseball All-Star Game (held in Kansas City, MO). The authors examined if and how this major sport event contributed to the development of social capital and psychic income for host residents and used social identity as a possible mediator between social capital and psychic income. The authors implied that social capital affects the level of psychic income, but only found evidence for a fully mediated model one month before the event but found no effect one month after the event. Other authors have suggested that psychic income from events might increase social capital of citizens through salubrious celebration and liminality (Chalip, 2006;

Kim & Walker, 2012). Given the ambiguous directionality between social capital and psychic income, we are not proposing a directional relationship in this study but will instead further unpack psychic income and social capital as possible social manifestations of events to explore their possible effects on SWB of host country residents.

Literature Review

Sport Events and Subjective Well-Being (SWB)

SWB focusses on people's own evaluations of their lives. Diener (2000) conceptualized SWB into four components: life satisfaction (global judgements of one's life), satisfaction with important domains in life, high positive affect and low negative affect. Most research analyzing the relationship between sport, happiness and feelings of well-being has focused on active participation. While some positive relationships were found between sport participation and well-being, Kavetsos (2011) warned of a potential bias of reverse causality. That is, happier people participate more in sport, instead of participation making them happier.

Some studies analyzed the relationship between elite sporting success and SWB. Hallman and colleagues (2013) demonstrated that international sporting success enhanced feelings of national pride and happiness. They considered pride (a psychic income measure) and happiness (an indicator of SWB) to be independent constructs. Based on an analysis of residents in 33 countries, Pawlowski and colleagues (2014) did not find a positive relationship between pride from sporting success and SWB, when controlling for the endogeneity (that is, by including nationalism to a more general latent factor model). This is in line with findings from Kavetsos (2012) who found that sport success positively influenced a measure of national pride (a type of psychic income) but did not affect SWB. Pawlowski et al. (2014) did find a positive association between SWB and frequency of physical activity, sport participation, and sport event attendance.

They indicated that sport event participation may be more important for SWB than sporting success of teams or countries.

Only few studies have focused on the relationship between hosting sport events and SWB of residents. In the context of the 2010 FIFA World Cup in South Africa (Kaplanidou et al., 2013) analyzed the relationship between perceived benefits of the host population and perceived satisfaction with life, three months before and eight months after the event. Findings revealed a positive relationship between perceived political, psychological, and social benefits and satisfaction with quality of life before and after the events; while perceived economic benefits showed a positive relationship after the event only. However, this study did not find differences in the level of perceived satisfaction with quality of life before and after the event.

Littlejohn and colleagues (2016) and Taks and colleagues (2016) tested a variety of ways to measure SWB in the context of event hosting. Based on Diener's (2000) theoretical definition of SWB, these studies proposed a holistic approach to measure SWB, including overall happiness, satisfaction with life, positive affect, and reversed negative affect. When SWB was tested for non-mega-events, no significant differences appeared for the holistic happiness measurement. In other words, residents did not show higher levels of happiness because their communities were hosting a sport event. However, results revealed significantly higher levels of happiness for non-attendees who were aware of the events, for example via media or social interactions. Thus, in the context of non-mega events, psychological involvement (i.e., knowing about the event) seemed to be sufficient to experience benefits in terms of SWB. In the context of mega-events, both host- and non-host city residents are aware of the event being hosted (Deccio & Baloglu, 2002; Ritchie et al., 2009). Thus, non-host city residents' psychological involvement with the event may affect their social experiences, and possibly SWB.

Schlegel and colleagues (2017) studied the relationship between perceived celebrative atmosphere (a proxy for psychic income) and SWB of Rio residents in the context of the 2014 FIFA World Cup. They compared measures over a three-week time span (starting one week before the event). SWB was measured with the Portuguese version of the World Health Organization's Five Well-Being Index (i.e., feeling cheerful and in good spirits, calm and relaxed, active and vigorous, fresh and rested, life filled with things of interest). Rio residents may have been directly exposed to the unique celebratory atmosphere the event created in the city via behavioral involvement. The authors found that host city residents' SWB was higher during the event, compared to before, revealing a positive impact of perceived celebratory atmosphere on residents' SWB. The study only included atmosphere as a predictor for SWB. This short-lived excitement in the air during (vs. before) the hosting of the event could only be experienced by event attendees. In fact, the celebratory atmosphere in this study measured aspects of liminality experienced through peripheral activities experienced from living in the city. Chalip (2006) emphasized that events create liminality through two key components: the sense of celebration and social camaraderie (linked respectively to psychic income and social capital). However, due to their magnitude, mega-events like the Olympic Games create opportunities for liminality which transcend local communities (Schlegel et al., 2017). Hence the focus on host country residents in this study.

Predictors of SWB are not yet fully understood and systematic reviews have been inconclusive regarding the question of whether and what factors increase the host population's subjective well-being and related constructs when hosting mega-sport events (Schlegel et al., 2017). In summary, we do not know whether and how events enhance people's SWB by making them happier or more satisfied with their lives, and for how long improved SWB can last

after the event. We also have little understanding of the underlying factors of SWB. Next, we explore how social manifestations of events may stimulate host country residents' social impact experiences as possible predictors of SWB.

Manifestations of Social Impact Experiences from Sport Events

Psychic income and social capital are core concepts in Social Anchor Theory (Oja et al., 2018), and commonly referred to as social manifestations of sport mega-events. Psychic income is also known as the “feel-good-factor”. It expresses a notion of welfare, which may lead to long-term community benefits (Gibson et al., 2014). For the purpose of this study, community refers to the collective of people living in the host country (Chalip, 2006). Psychic income includes aspects such as community and event-related excitement and pride (Gibson et al., 2014). While social capital is a complex and contested concept (Welty Peachey et al., 2015), we rely on Putnam's (2000a) perspective of social capital that described how sport (and sport events) create opportunities for social capital formation by bringing citizens together in an inclusive manner. In his social leveraging framework, Chalip (2006) posits that the magnitude of the Olympic Games prompts discussion among community members, brings citizens together through conversations, and thereby enhances opportunities for social capital formation. Because there is no unified way to define and measure social capital, we sought to capture a series of social manifestations of events that encompass elements of both core concepts of social anchor theory, namely psychic income and social capital.

Schlegel et al. (2017) proposed that elements of psychic income such as atmosphere and festive elements may influence social cohesion and community engagement, as well as stimulate residents to become more physically active, and hence promote SWB. Studies have shown that the Olympic Games create opportunities for people to celebrate (experience community spirit;

e.g., Gibson et al., 2014), connect (social cohesion; Taks & Rocha, 2017), change perceptions of safety (e.g., Kim et al., 2015), and engage with others (community involvement e.g., Peterson et al., 2008); and participate in sport (Taks & Rocha, 2017). With regard to sport participation, a recent study by Potwarka and colleagues (2021) demonstrated that trickle-down-effects are not limited to the hosting area by showing that home town athletes winning medals in Olympic Games affected leisure time physical activity rates of youth back home. Thus, to investigate how psychic income and social capital from Rio2016 affected SWB of Brazilians, we measured community spirit, community involvement, social cohesion, feelings of (un)safety, and intentions to participate in sport. We collectively labeled those constructs as manifestations of social impact experiences from the event.

Based on the notion that subjective outcomes such as SWB are, in fact, a function of lived experiences (Costanza et al., 2007; Eckhaus & Sheaffer, 2018), we argue that for people's SWB to be affected, social impacts of events should be expressed in terms of lived experiences, and not in terms of generic perceptions of others (see also Oshimi et al., 2021; Taks et al., 2020). While we acknowledge that experiences are still subjective feelings or perceptions of an individual, we use the term "experience" here as a self-reflection of a social experience using terms like "I" and "me" (e.g., "the event lifted *my* spirits") to distinguish this from the generic "perception of others" (e.g., "The World Cup increased community spirit and pride") (Gibson et al., 2014). These experiences may change over time, as we further elaborate in the next section.

Temporal effects of Social Impacts and SWB

Some social impact experiences are at their highest during the event, while others may be stimulated through the event and increase post event. Kavetsos and Szymanski's (2010)

research compared the feel-good effect of Olympic Games, the FIFA World Cup and the UEFA European Championship. The authors found a stronger feel-good effect associated with the football events compared to the Olympic Games, but found no evidence of longevity of that effect. The short-lived effect decreased after three months (from summer to the fall). They found no effect one year prior to the event. Schlegel and colleagues' (2017) analyzed the relationship between celebrative atmosphere and SWB in the context of the 2014 FIFA World Cup hosted in Brazil for two different time periods: one week before, and during the event. Residents' SWB was higher during than before the event, revealing a positive impact of perceived celebratory atmosphere on residents' SWB. However, Schlegel et al.'s study did not provide evidence for the development of SWB after the event.

Gibson et al. (2014) investigated psychic income three months prior to the 2010 FIFA World Cup in South Africa as compared to eight months after the event and found lower levels before compared to after the event. There was, however, no measurement during the event. Thus, they could not inform whether the levels of psychic income were at their highest peak during the event as compared to after. Nevertheless, the study showed that the event stimulated psychic income, and that these levels remained higher up to eight months after the event compared to before. The high levels of psychic income they found could be explained by the fact that measurements were based on perceptions rather than personal experiences. Oja and colleagues (2018) analyzed components of psychic income and social capital related to a Major League Baseball All-Star Game on Kansas City residents, collecting and comparing data from 6 weeks/1 month prior to 1 month/6weeks after the event. They found that the excitement for the city (i.e., psychic income) decreased one month after the event. In contrast, social capital (bonding and

bridging social capital in generic terms) increased one month after the event, indicating a lingering effect up to six weeks after the event, which is still a pretty short time span.

Other studies found psychic income (Kavetsos & Szymanski, 2010; Waitt, 2003), feelings of unsafety (Kim & Walker, 2012), and community involvement with the event (Peterson et al., 2008) to be at their highest point during the event, fading away weeks after the events. In contrast, social cohesion and sport participation can be outcomes of the event with a potential to last longer (Gibson et al., 2014). If there is an effect for these outcomes, it should be higher post event. Thus, variations in social impact experiences are expected to affect SWB differently during and after the event. This has led us to the following research questions: Have different manifestations of social impact *experiences* from Rio2016 contributed to SWB of Brazilian residents during the event? (RQ₁); and: Has the relationship between manifestations of social impact *experiences* and SWB of Brazilian residents changed over time? (RQ₂).

Attitudinal Involvement and Social Impact Experiences through Events

In the context of leisure studies, involvement has been defined as “a psychological state of motivation, arousal, or interest between an individual and recreational activities [...]” (Havitz & Dimanche, 1990). Newman and colleagues (2014) proposed that SWB generated by leisure activities depends not only on structural aspects of the activity (e.g. watching a sport event), but also and mainly on the attitudinal involvement (subjective leisure) the individual has with the activity. Based on theoretical foundations of Allport's (1945) theory about the psychology of participation, Beaton and colleagues (2011) proposed that sport involvement is built on the centrality, hedonic value and symbolic value of a sport activity. Involvement can create bridging social capital for different reasons (Newman et al., 2014; Oja et al., 2018). Involvement with the event can lead to social experiences because motivation to watch a sport event is based not only

on indicators of pleasure (e.g. eustress, aesthetics), symbolic value (e.g. entertainment) and centrality (e.g. self-esteem), but also on indicators of social needs (e.g. time with family and friends, group affiliation; Wann et al., 1999). Beaton and colleagues' proposal encompasses both psychological and behavioral involvement. Transferring this to sport events, we should expect that the more people get involved with the event (e.g., attending the event), the higher the chances that such behavioral involvement promotes SWB (Beaton et al., 2011; Newman et al., 2014).

Thinking about sport mega-events, most host country residents do not have the opportunity for direct behavioral involvement with the event, such as attending the event, volunteering, and/or experiencing the celebratory city atmosphere of the event (Schlegel et al., 2017). Nevertheless, due to the gigantism and the associated spillover effect of mega-events (Deccio & Baloglu, 2002a; Ritchie et al., 2009), country residents can be attitudinally involved with the event. The relevance of a sport event affects how people get involved and experience the impact from an event (Hallmann et al., 2013; Kavetsos & Szymanski, 2010). Thus, considering the low chances of direct behavioral involvement, it is important to understand how people get attitudinally involved with sport events. Attitudinal involvement with a sport event is expected to affect social experiences (linked to the event) people might have had.

Hallman et al. (2013) demonstrated that attitudinal involvement with elite sport enhanced perceptions of national pride and happiness, demonstrating a direct positive relationship between involvement and pride, and involvement and happiness. Pawlowski et al. (2014) found a positive association between attendance at sport events (behavioral involvement) and SWB. Note that these authors analyzed the relationship between sporting success and SWB, and not the relationship between hosting sport mega-events and SWB. In contrast, Oja and colleagues (2018)

analyzed the relationship between hosting an event and SWB. They found a short influx of social impact among the residents of the host city, proposing that in addition to community pride, civic pride, and enhanced collective self-esteem, attitudinal involvement with a sport event was one of the factors generating psychic income. Therefore, attitudinal involvement with a sport event may positively affect residents' social experiences. This led to our third research question: Has attitudinal involvement with Rio2016 affected manifestations of social impact *experiences* of Brazilian residents during the event? (RQ₃)

It is reasonable to believe that attitudinal involvement with the event decreases when the event is over (i.e., perceptions of excitement, relevance, importance, etc.). While it is also reasonable to believe that social experiences from the event would also decrease, we found no evidence in the literature for temporal variation in the relationship between attitudinal involvement and social experiences from an event. This led to our fourth research question: Has the relationship between attitudinal involvement with Rio2016 and manifestations of social impact *experiences* changed over time? (RQ₄)

In summary, the purpose of this contribution is to examine the effects of social impact experiences from the Rio2016 Olympic and Paralympic Games (Rio2016) on SWB of host country residents, taking into consideration the attitudinal involvement with the event. Given that these effects may change over time, the following four research questions are put forward:

- RQ₁: Have different manifestations of social impact experiences from Rio2016 contributed to SWB of Brazilian residents during the event?
- RQ₂: Has the relationship between manifestations of social impact experiences and SWB of Brazilian residents changed over time?

- RQ₃: Has attitudinal involvement with Rio2016 affected manifestations of social impact experiences of Brazilian residents during the event?
- RQ₄: Has the relationship between attitudinal involvement with Rio2016 and manifestations of social impact experiences changed over time?

Method

Sample and data collection

This study applied a cohort longitudinal design. In a cohort longitudinal design, “a specific population is followed over a length of time *with different random samples* studied at various points” (Ary et al., 2018). While in panel longitudinal design studies the same sample is investigated at different times; in cohort longitudinal studies different samples, drawn in a similar manner, are investigated at different times (Salkind, 2010). Longitudinal studies, either panel or cohort, do not require equal sample sizes in different times (Menard, 2007). After ethics approval was obtained from EEFERP/USP/PB (#1.372.255), we sent an online questionnaire to alumni (N = 3909) of a large Brazilian University, non-event attendees. Two selection questions were used to delimit the sample to non-residents of Rio de Janeiro and non-attendees of Rio2016. This first set of data was collected during the Olympic and Paralympic Games (August/September 2016) and the second set of data six months after Rio 2016 (in March 2017). The link of the questionnaire was distributed via Lime Survey. A week after the first e-mail, a reminder was sent to those who had not answered the questionnaire. No additional reminders were sent. In the invitation email, 317 emails bounced back, reducing the sample (N = 3592). The data collection during and after both generated 11.2% response rate, with n = 402 and n = 401 usable responses, respectively. More males (55.2%) responded to the questionnaire during the Games, while more females (53.1%) responded after the Games. The during-the-

Games sample was slightly younger ($M = 27.9$; $SD = 6.0$) than the after-the-Games sample ($M = 29.4$; $SD = 6.1$). All respondents had at least a bachelor's degree and lived in São Paulo State at the time of both data collections, which happened in August/September 2016 (during the event) and March 2017 (6 months after the event). Only 23% of the sample, in both times, expressed that paying the bills was difficult. While this sample of university graduates is not representative of the Brazilian population, it is well suited to attain the aim of this study. In addition, this segment of population may have higher chances to get involved with the Games since Brazilians with a higher level of education have higher chances to have discretionary money to invest in leisure activities (Heringer, 2015). Therefore, this segment of the population would be more likely to have time to invest in social experiences of the Olympic Games. This represents a research option only and, by no means, indicates that we agree with unequal access to social experiences from hosting sport mega-events.

Authors do not agree on the necessary time frames to study event impacts or outcomes (see, for instance, the section on temporal effects in literature review), but there is consensus that post-event related hype should be avoided to measure potential sustainable outcomes (e.g., [Gibson et al., 2014](#); [Gursoy et al., 2011](#)). We therefore deliberately waited six months after the Games because we wanted to provide enough time for emotions to fade away. The Games took place in August and September 2016, the first point of data collection. The second point of data collection happened in March 2017, to avoid the 2016 holidays (Christmas and New Year's Eve) and Carnival (which is a big party in Rio and happened in February 2017).

Measurements

Subjective well-being (SWB). SWB is represented by three indicators: happiness, life satisfaction and life affects. Happiness was measured by one item (Kavetsos & Szymanski,

2010a), where respondents were asked to rate the following statement, “Taking all aspects of your life into account, please select your current level of happiness” (1 – *not happy at all* to 6 – *very happy*). Life satisfaction was measured by the average of three items (Connolly, 2013), where respondents were asked to rate their current level of satisfaction with three domains: life at home, health, and occupation (1 – *not at all satisfied* to 4 – *very satisfied*). Life affects were measured by the average of three positive items (happily, friendly, enjoying myself) and five reversed negative items (frustrated, depressed, hassled, worried, tired; Diener, 2000), where respondents were asked to answer the question “How have you generally felt during the past week?” (0 – *not well at all* to 6 – *very well*). Table 1 contains all item wordings.

Social impact experience. Five different manifestations of social impact experiences were considered in this study: social cohesion (four items from Taks & Rocha, 2017), community spirit (three items from Gibson et al., 2014), feelings of (un)safety (three items from Kim et al., 2015), community involvement (three items from Peterson et al., 2008), and sport participation (three items from Taks & Rocha, 2017). The stem for the social impact experience items read: “Please, rate your level of agreement with the following statements”. Note that while the constructs were retrieved from other studies, all items were rephrased to reflect self-referenced experiences of social impacts rather than generic perceptions of others (e.g., Oshimi et al., 2021; Taks et al., 2020). That is, we asked whether the respondent experienced a social impact (self-referenced experience), instead of asking whether the event is useful to promote social impacts (generic perceptions of others). For example, one item in the social cohesion subscale read: “The Olympic Games strengthen *my* relationships in the community” (emphasis added). All items reflected self-referenced experiences and were measured on a 7-point Likert scale (1 – *strongly disagree* to 7 – *strongly agree*). Two experts, not part of the research team,

assessed and supported the content validity of the scale.

Attitudinal involvement with the event. We used Shank and Beasley's (1998) Sport Involvement Scale to measure this variable. The authors defined involvement as "perceived interest in and personal importance of sport to an individual" (p. 436), where "sport" could be understood as a broad term, encompassing sport participation, sport spectatorship, and sport events. That scale revealed a cognitive and an affective dimension. Studies that had used that scale found no discriminant validity between the cognitive and affective dimensions, and combined the dimensions into one comprehensive measure of attitudinal involvement, reflecting the perceived relevance of a sport or a sport event (Mutter & Pawlowski, 2014). As such, event (Rio2016) involvement is represented by eight semantic differential items, ranging from 1 (e.g., *boring*) to 7 (e.g., *exciting*). The stem for this section read: "Please, rate your personal feelings toward the Rio 2016 Olympic Games". Table 1 contains all pairs of adjectives.

Data analyses

To answer our four research questions, we designed a model (Figure 1). In this model, attitudinal involvement is the antecedent of five social impact experiences: social cohesion, community spirit, feelings of (un)safety, community involvement and sport participation. These five manifestations of social impact experiences, in turn, are antecedents of perceptions of subjective well-being. The model was tested twice, during and after Rio2016. We applied covariance-based structural equation modeling (SEM) to test the model during and after Rio2016. Based on the measurement model, we verified the internal consistency of each scale, using Cronbach's alpha (Nunnally & Bernstein, 1994), and analyzed the construct's convergent and discriminant validity (Fornell & Larcker, 1981). After that, we ran multiple *t*-tests, with Bonferroni correction (to avoid alpha error inflation), to verify whether respondents differ in

their attitudinal involvement with Rio2016, social impact experiences and SWB, during and after the event. Finally, we tested the structural model for each time individually to produce the path coefficients. We controlled for age and gender when testing the models. M plus 7.11 was used to test the measurement and the structural models.

Results

The measurement model fit the data closely in both times, during (CFI = .960; TLI = .952; RMSEA [90% CI] = .049 [.043; .054]; SRMR = 0.060) and after (CFI = .944; TLI = .933; RMSEA [90% CI] = .061 [.055; .066]; SRMR = 0.064) Rio2016. All scales presented acceptable internal consistency, with Cronbach's alpha varying from .715 to .946 during the Games; and from .652 to .950 after the Games (Table 1). Some higher values of Cronbach's alpha may indicate some redundancy in the items, mainly in sport participation and attitudinal involvement scales. Average variance extracted (AVE) of the scales were above .50, indicating convergent validity. The only exception was the after-the-event community involvement subscale, where one item factor loading was low, causing the AVE to drop below .50. Instead of dropping this item to increase the AVE, we decided to keep the original subscale because it has worked well for the during-the-event sample and the item has a substantive importance. The AVE for each construct was larger than the squared correlations between this construct and all other constructs, indicating discriminant validity for the subscales used in the study (Fornell & Larcker, 1981).

[Table 1 near here]

Descriptive statistics showed that, during Rio2016, Brazilian respondents were somewhat happy with their lives ($M = 4.61$; $SD = .86$ – in a 6-point scale), relatively satisfied with their lives, health, and occupation ($M = 2.98$; $SD = .49$ – in a 4-point scale), and experiencing positive affects ($M = 4.86$; $SD = .98$ – in a 7-point scale). After the Games, these values did not change

significantly (Table 2). During the Games, residents experienced low/moderate social impact experiences associated with Rio2016 (means varying from 3.47 to 4.50 – in a 7-point scale), but after the Games, social impact experiences dropped significantly (means varying from 2.60 to 3.39; see t values in Table 2). During the Games, they had a positive attitudinal involvement with Rio2016 ($M = 5.62$; $SD = 1.23$ – in a 7-point scale), but this involvement fell significantly after the Games ($M = 5.19$; $SD = 1.45$; $t = 4.528$; $p < .001$; Table 2).

[Table 2 near here]

The structural model also fit the data closely in both times, during (CFI = .947; TLI = .939; RMSEA [90% CI] = .055 [.050; .060]; SRMR = 0.080) and after (CFI = .944; TLI = .933; RMSEA [90% CI] = .061 [.055; .066]; SRMR = 0.064) Rio2016. During the Games, the path coefficients from attitudinal involvement to four (out of five) manifestations of social impact experiences were significant (Figure 1): social cohesion ($\gamma = .535$; $p < .001$), community spirit ($\gamma = .609$; $p < .001$), community involvement ($\gamma = .395$; $p < .001$), and sport participation ($\gamma = .460$; $p < .001$). The exception was the path coefficient from attitudinal involvement to feelings of (un)safety, which was non-significant ($\gamma = .030$; $p = .583$). However, after the Games, none of the path coefficients from attitudinal involvement to manifestations of social impact experiences was significant. None of the path coefficients from manifestations of social impact experiences to SWB was significant, either during or after the Games (Figure 1).

[Figure 1 near here]

Discussion

The overall purpose of this study was to examine the effects of social impact experiences from Rio2016 on SWB of host country residents, taking into consideration the attitudinal involvement with the event. Rio2016 provided the context for the study and data were collected

from Brazilian residents during and six months after the event (cohort longitudinal design). SWB is an important intangible outcome variable from hosting a sport mega-event, given the substantial contributions of host country residents. By investigating social impact experiences and attitudinal involvement as underlying mechanisms of SWB, this study contributes the limited knowledge to answer if, and how, events may contribute to SWB.

Differences in attitudinal involvement, social impact experiences and SWB during and after the event

During Rio2016, many Brazilians were under the spell of this event. They found it quite exciting, interesting, valuable, attractive, useful, necessary, relevant and important. Although this level of attitudinal involvement dropped significantly after the event, the levels of involvement were relatively high in both instances (> 5, on a 7-point Likert scale). This confirms that a mega-event like Rio2016 affects people outside the host area (Deccio & Baloglu, 2002; Potwarka et al., 2021; Ritchie et al., 2009) , and the relevance to investigate the effect of mega-events on country residents.

Dimensions of psychic income and social capital as core elements of social anchor theory (Clopton & Finch, 2011; Oja et al., 2018) were framed in terms of five manifestations of social impact experiences: social cohesion, community spirit, feelings of (un)safety, community involvement, and sport participation (Oshimi et al., 2021; Taks et al., 2020). We found good psychometric support for the scale. The results show rather low levels of all five manifestations of social impact experiences during the games, and significantly lower levels six months after the event. For example, we found no evidence for an experienced impulse to increase sport participation, confirming previous studies (Weed et al., 2015). During the event, community spirit (e.g., celebrating) and community involvement (e.g., talking about the event) were the only

two manifestations with mean scores slightly above the midpoint (4.04 and 4.50 respectively on the 7-point Likert scale). Thus, when social impacts were measured based on experiences, we did not find strong evidence that events substantially contribute to country residents' social experiences. Previous studies measured social impacts based on perceptions (Kim et al., 2015; Kim & Walker, 2012; Oja et al., 2018) and found higher levels of social impact during the event. This might be partially true because most of these studies investigate host city residents, who may be more strongly affected than non-host city residents (i.e., country residents). But, more importantly, this can also be associated with the fact that perceptions tend to overinflate social impacts (Fredline et al., 2006; Oshimi et al., 2021; Taks et al., 2020). Moreover, results on temporal changes in perception-based studies showed varied effects of social impacts from events (unchanged, decrease or even increased; e.g. (Gibson et al., 2014; Taks et al., 2020) , while we found a systematic drop in the already low levels of all social impact experiences. Future research may further explore similarities and differences between measuring social impacts based on experiences and perceptions, and the differences between host-city and non-host residents. Similar to other studies, this study has shown that social experiences associated with sport mega-events tend to be lower when compared to perceptions (Fredline et al., 2006; Oshimi et al., 2021; Taks et al., 2020).

Although we found no sharp peak level of social impact experiences during the event, we did find higher levels during than post- event, indicating that these experiences were not maintained after the event. These findings align with previous studies pointing to the short-lived feel-good factor (Kavetsos & Szymanski, 2010), the spike in psychic income (Oja et al., 2018) or the temporary excitement (Oja et al., 2018; Schlegel et al., 2017) of sport mega-events. Feelings of euphoria flare up during events but are not sustained over time (Waite, 2003). However, in the

absence of social impact measurements before Rio2016, comparisons with those studies should be made with caution. Considering the differences between during and after Rio2016, we cannot speculate much about what happened before the event. Future research would benefit from including three measuring points for social impact experiences: before, during and after the event.

We found high levels for all three SWB measures: happiness, life satisfaction and affect, during and after the event. If the event contributes to people's happiness, this result could make us believe that enhanced feelings of SWB through events are actually sustained six months after the event. However, the literature shows that happiness from events does not transfer to happiness in other life domains (Diener, 2000), not during or after the event. By testing the relationships between social impact experiences directly derived from the event and SWB, taking into consideration involvement with Rio2016, we provided deeper insights into how events can potentially contribute to residents' SWB. We discuss these relationships in the next section, answering the research questions of the study.

Relationships between attitudinal involvement, social impact experiences and SWB during and after the event

RQ₁ asked, "Have different manifestations of social impact *experiences* from Rio2016 contributed to SWB of Brazilian residents during the event?" The answer to this question was *no*. We found no significant relationship between social impact experiences and SWB during the event. This is in contrast with previous studies, which indicated that social cohesion, feelings of community and safety, as components of social capital (Leung et al., 2011) may fuel a sense of community (Chalip, 2006), which in turn may contribute to SWB (Cramm & Nieboer, 2015). Similarly, the notion that sport participation may enhance feelings of SWB (Downward &

Rasciute, 2011) was not supported by our findings. It is noteworthy that we measured experiences of increased interest in sport participation, and not actual participation in sport. The differences between our findings and previous studies can once more be attributed (at least partially) to the fact that we measured social experiences. In line with other studies (Fredline et al., 2006; Oshimi et al., 2021; Taks et al., 2020), measuring experiences led to lower levels of self-reported social impacts, when compared to previous studies that used perceptions (Kaplanidou et al., 2013; Kim & Walker, 2012; Taks et al., 2016), or measured social capital in general, and not directly related to the event (Gibson et al., 2014). For instance, participants informed that the event has not increased their interest in sport participation; hence, an effect on SWB should be hardly expected. In short, the social impact experiences were not strong or meaningful enough to have any effect on SWB during the event.

RQ₂ asked, “Has the relationship between manifestations of social impact *experiences* and SWB of Brazilian residents changed over time?” The answer to this question was also *no*. There was no relationship between social impact experiences during and this situation did not change after the event. Most previous longitudinal studies have not tested whether relationships between social impact manifestations and SWB changed over time (Gibson et al., 2014; Kavetsos & Szymanski, 2010; Oja et al., 2018; Schlegel et al., 2017). They have focused on comparing before and after perceptions of social impact manifestations and subjective outcomes (life satisfaction, happiness or SWB). For example, Oja et al. (2018) found no changes over time (before and after a sport mega-event) in the relationships among social identity, psychic income, and social capital, but they did not test subjective outcomes of sport events as possible benefits of that sport event. Our study extends the literature by showing that, in addition to the relationship among manifestations of social impacts not being affected, sport mega-events

seem not to affect the relationship between those manifestations and subjective outcomes (SWB in our case) either.

RQ₃ asked, “Has the attitudinal involvement with Rio2016 affected manifestations of social impact *experiences* of Brazilian residents during the event?” The answer for this question was *yes*, with one exception. Except for feelings of (un)safety, we found evidence that attitudinal involvement positively affected social impact experiences of the country residents during the event. The positive relationship found during the event is in line with previous studies (Hallmann et al., 2013; Mutter & Pawlowski, 2014; Oja et al., 2018). For example, Hallman et al. (2013) found a positive relationship between attitudinal involvement (interest) in elite sport and feelings of national pride (a manifestation of social impact). Pawlowski et al. (2014) found a positive association between behavioral involvement (attending sport events) and national pride. Our results extended the literature by showing that, during the event, involvement with a sport mega-event could lead to other positive manifestations of social impacts, such as social cohesion, community spirit, community involvement and sport participation. In addition, we showed that the relationship exists between involvement and manifestations of social impact experiences. The non-significant relationship between involvement with Rio2016 and feelings of (un)safety may be explained by the fact that this factor was framed in the context of terrorism attacks (based on Kim et al., 2015). Although terrorism has been a threat for Olympic hosts, terrorism has not affected Brazil directly. Therefore, variance in involvement might not have affected feelings of (un)safety, because respondents might have not associated Rio2016 with possible terrorist threats.

RQ₄ asked, “Has the relationship between attitudinal involvement with Rio2016 and manifestations of social impact *experiences* changed over time?” The answer for this question

was *yes*, with one exception. The positive relationship between attitudinal involvement with Rio2016 and those four (out of five, except for feelings of (un)safety) manifestations of social impact did not endure post-event. All path coefficients from attitudinal involvement to manifestations of social impact experiences became non-significant six months after the event. Interestingly, feelings of excitement, relevance and importance (indicators of attitudinal involvement in our scale) remained quite high (> 5 , on a 7-point Likert scale) after the event, but all social impact experiences dropped below the mid point (< 4 , on a 7-point Likert scale). This suggests that when Rio2016 was over, country residents quickly forgot how the event had sparked some experiences (e.g., creation of new relationships in the community). This confirms previous studies, emphasizing that the “feel-good” factor is short-lived (Maennig & Porsche, 2008). However, it contravenes Gibson et al. (2014) who discovered an increase in psychic income eight months after the FIFA 2010 World Cup in South Africa. Other studies that tested the relationship between involvement (with sport) and social impact factors were cross-sectional (Hallmann et al., 2013; Pawlowski et al., 2014). The current study added to the literature by showing that not only social impact factors, but also the magnitude of the relationships between attitudinal involvement and such factors decreased after the event. Thus, the positive relationship between involvement and social impact experiences during the event may be an artifact, present for only a couple of weeks. We find no evidence for sustained positive relationships.

Practical implications

Given the substantial financial and emotional contribution of country residents as a whole, it is the responsibility of public authorities in particular to make sure that there is a substantial and relevant return for these residents. For instance, public authorities need to be accurately informed of the existence or absence of intangible benefits from sport mega-events.

Based on our findings, event organizers, public authorities, as well as leaders of sport governing bodies responsible for organizing sporting events should refrain from claiming that hosting sport mega-events contributes to SWB of host residents. Social impact experiences for host country residents are low, with the exception of the short-lived party euphoria during the event (Schlegel et al., 2017; Waitt, 2003). This raises the question whether these limited intangible benefits justify the major capital investments made by public authorities. Even if public authorities find ways to enhance social impact experiences by more fully engaging the community, incorporating community goals into the planning and implementation of the event (Chalip, 2006; Misener & Mason, 2006), the longevity of the effect remains questionable. Our results suggest that it is a mistake to rely on sport mega-events to promote SWB. Involvement with sport mega-events can spark the flame by creating some social impact experiences during the event. However, the spark fades away very quickly, leaving no social legacy, let alone an effect on SWB. If enhancing social impacts from events is important, public authorities can create experiences through leveraging tactics (Chalip, 2006), without claiming to promote SWB.

Our findings have practical implications also for guardians of sport mega-events, in the current case, the IOC. The gigantism of the Olympic Games has attracted many expectations in terms of tangible and intangible legacies (Preuss & Hong, 2021). As many investigations showed an absence of tangible legacies (Agha & Taks, 2018; Kesenne, 2012), the IOC has recently focused on promoting the importance of intangible legacies, such as social impacts and SWB (Müller et al., 2021). However, as the current results showed, the IOC may have to change this strategy soon. As intangible legacies cannot be guaranteed after hosting the Olympic Games, the IOC may be forced to choose between two future strategies. First, it might reassess the gigantism of the Olympic Games and take some serious steps to reduce its size (Agha & Taks, 2015).

Second, as the first one is very unlikely to happen, the IOC should be realistic and stop promoting never-delivered legacies for hosts. In this case, the IOC should recognize the Olympic Games as a grandiose sport spectacle, bringing the best athletes in the world together, as well as a commercial product, profitable for themselves and for major corporations (Rocha, 2020).

Limitations and Future Research

A limitation of the current study is that data were collected from a very specific segment of the host population. University graduates are by definition well formally educated people, who are more likely to be critical of these events and their possible effects. Because they are more affluent than the general population, they may also experience higher levels of SWB (Pinquart & Sörensen, 2000). While the results might not be generalizable to the general population, this sample was appropriate to test the relationship between involvement, social impact experiences and SWB. The lack of significant effects from event involvement and social impact experiences to explain SWB for this segment of the host country's society might indicate that other segments, with less discretionary time and money, can face more challenges to experience social impacts of sport mega-events. Future research could test that relationship for a representative sample of country residents, and test if the relationships differ between different strata or even between host city and non-host city residents. Another limitation is the absence of measures before the Games. Future research would benefit from including measurements before the event takes place (e.g., six months prior) to further our understanding of the relationship between attitudinal involvement, social impact experiences and SWB, and particularly to understand better whether, and to what extent SWB is, in fact, associated with the event .

In this study, we have focused only on attitudinal involvement as antecedent of social impact experiences and SWB. Future studies may consider both attitudinal and behavioral involvement. Keeping in mind that the literature is consistent that attitudinal involvement should lead to behavioral involvement (Beaton et al., 2011; Newman et al., 2014), it could be informative to investigate how behavioral involvement relates to social impact experiences and SWB. A sample from event attendees should be ideal to test a model with behavioral involvement, because they are the ones who certainly show at least one behavior denoting involvement (i.e. attendance). Nevertheless, other types of behavioral involvement may also be considered, such as watching the event on television, browsing the internet, and interacting with other sport fans via social media (Smith et al., 2019).

Conclusion

Rio2016 provided a big party for many residents in the country, including those who were not living in the hosting city. While country residents were cognitively and emotionally involved with the event for a longer period of time, the event had no demonstrable effect on their SWB. The short-lived, albeit minimal, spike of some social impact experiences (e.g., community involvement through conversations about the event), stimulated through attitudinal involvement with the event, did not transfer to well-being in other domains of life during or after the event. Overall, sustainable returns in terms of SWB for those who paid for these types of events were non-existent in the case of Rio2016. Guardians and organizers of sport mega-events should find better ways to minimize the cost for taxpayers, by limiting expenditures (e.g. downscaling) and finding better ways to finance these events with private money. Hosting can stimulate involvement with sport events in the period leading up to the event, enhancing social impact experiences during the event, but it has little power to positively affect SWB of residents.

References

- Agha, N., & Taks, M. (2015). A theoretical comparison of the economic impact of large and small events. *International Journal of Sport Finance*, *10*(3), 199–216.
- Agha, N., & Taks, M. (2018). Modeling resident spending behavior during sport events: Do residents contribute to economic impact? *Journal of Sport Management*, *32*(5), 473–485.
- Allport, G. W. (1945). The psychology of participation. *Psychological Review*, *52*(3), 117.
- Ary, D., Jacobs, L. C., Irvine, C. K. S., & Walker, D. (2018). *Introduction to research in education*. Cengage Learning.
- Beaton, A. A., Funk, D. C., Ridinger, L., & Jordan, J. (2011). Sport involvement: A conceptual and empirical analysis. *Sport Management Review*, *14*(2), 126–140.
<https://doi.org/10.1016/j.smr.2010.07.002>
- Chalip, L. (2006). Towards social leverage of sport events. *Journal of Sport & Tourism*, *11*(2), 109–127. <https://doi.org/10.1080/14775080601155126>
- Clopton, A. W., & Finch, B. L. (2011). Re-conceptualizing social anchors in community development: Utilizing social anchor theory to create social capital's third dimension. *Community Development*, *42*(1), 70–83.
- Connolly, M. (2013). Some like it mild and not too wet: The influence of weather on subjective well-being. *Journal of Happiness Studies*, *14*(2), 457–473.
- Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans, R., Danigelis, N. L., Dickinson, J., Elliott, C., Farley, J., Gayer, D. E., Glenn, L. M., Hudspeth, T., Mahoney, D., McCahill, L., McIntosh, B., Reed, B., Rizvi, S. A. T., Rizzo, D. M., ... Snapp, R. (2007). Quality of life: An approach integrating opportunities, human needs, and subjective well-being. *Ecological Economics*, *61*(2–3), 267–276.
<https://doi.org/10.1016/j.ecolecon.2006.02.023>
- Cramm, J. M., & Nieboer, A. P. (2015). Social cohesion and belonging predict the well-being of community-dwelling older people. *BMC Geriatrics*, *15*(30), 1–10.
<https://doi.org/10.1186/s12877-015-0027-y>
- Deccio, C., & Baloglu, S. (2002b). Nonhost community resident reactions to the 2002 Winter Olympics: The spillover impacts. *Journal of Travel Research*, *41*, 46–56.
<https://doi.org/10.1177/0047287502041001006>
- Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, *1*, 34–43.
- Downward, P., Dawson, A., & Dejonghe, T. (2009). *Sports economics: Theory, evidence and policy*. BH Elsevier.
- Downward, P., & Rasciute, S. (2011). An economic analysis of the subjective health and well-being of physical activity. In P. Rodriguez, S. Kesenne, & B.R. Humphreys (Eds.), *The economics of sport, health and happiness: The promotion of well-being through sporting activities* (pp. 33–53). Edward Elgar Publishing.
- Eckhaus, E., & Sheaffer, Z. (2018). Happiness enrichment and sustainable happiness. *Applied Research in Quality of Life*, 1–19.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*, 39–50.
- Fredline, L., Deery, M., & Jago, L. (2006a). *Development of a scale to assess the social impacts of tourism within communities*. CRC for Sustainable Tourism.

- Gibson, H. J., Walker, M., Thapa, B., Kaplanidou, K., Geldenhuys, S., & Coetzee, W. (2014). Psychic income and social capital among host nation residents: A pre–post analysis of the 2010 FIFA World Cup in South Africa. *Tourism Management*, *44*, 113–122.
- Gursoy, D., Chi, C. G., Ai, J., & Chen, B. T. (2011). Temporal Change in Resident Perceptions of a Mega-event: The Beijing 2008 Olympic Games. *Tourism Geographies*, *13*(2), 299–324. <https://doi.org/10.1080/14616688.2010.529935>
- Hallmann, K., Breuer, C., & Kühnreich, B. (2013). Happiness, pride and elite sporting success: What population segments gain most from national athletic achievements? *Sport Management Review*, *16*(2), 226–235. <https://doi.org/10.1016/j.smr.2012.07.001>
- Havitz, M. E., & Dimanche, F. (1990). Propositions for testing the involvement construct in recreational and tourism contexts. *Leisure Sciences*, *12*(2), 179–195.
- Heringer, R. (2015). Affirmative action and the expansion of higher education in Brazil. In O. A. Johnson & R. Heringer (Eds.), *Race, politics, and education in Brazil* (pp. 111–131). Springer.
- Jepson, A. S., & Walters, T. (2021). *Events and well-being* (1st ed.). Routledge.
- Kaplanidou, K., Karadakis, K., Gibson, H., Thapa, B., Walker, M., Geldenhuys, S., & Coetzee, W. (2013). Quality of life, event impacts, and mega-event support among South African residents before and after the 2010 FIFA World Cup. *Journal of Travel Research*, *52*(5), 631–645. <https://doi.org/10.1177/0047287513478501>
- Kavetsos, G. (2011). Physical activity and subjective well-being: An empirical analysis. In B. R. H. P. Rodriguez and S. Kesenne (Ed.), *The economics of sport, health and happiness: The promotion of well-being through sporting activities* (pp. 213–222). Edward Elgar Publishing.
- Kavetsos, G. (2012). National Pride: War Minus the Shooting. *Social Indicators Research*, *106*(1), 173–185. <https://doi.org/10.1007/s11205-011-9801-1>
- Kavetsos, G., & Szymanski, S. (2010). National well-being and international sports events. *Journal of Economic Psychology*, *31*(2), 158–171. <https://doi.org/10.1016/j.joep.2009.11.005>
- Kesenne, S. (2012). The economic impact, costs and benefits of the FIFA World Cup and the Olympic Games: Who wins, who loses? In W. Maennig and A. Zimbalist, *International handbook on the economics of mega sporting events* (pp. 270–278). E. Elgar.
- Kim, W., Jun, H. M., Walker, M., & Drane, D. (2015). Evaluating the perceived social impacts of hosting large-scale sport tourism events: Scale development and validation. *Tourism Management*, *48*, 21–32.
- Kim, W., & Walker, M. (2012). Measuring the social impacts associated with Super Bowl XLIII: Preliminary development of a psychic income scale. *Sport Management Review*, *15*(1), 91–108. <https://doi.org/10.1016/j.smr.2011.05.007>
- Leung, A., Kier, C., Fung, T., Fung, L., & Sproule, R. (2011). Searching for Happiness: The Importance of Social Capital. *Journal of Happiness Studies*, *12*(3), 443–462. <https://doi.org/10.1007/s10902-010-9208-8>
- Littlejohn, M., Taks, M., Wood, L., & Snelgrove, R. (2016). Sport events and happiness: Towards the development of a measuring instrument. *World Leisure Journal*, *58*(4), 255–266.
- Liu, D., Broom, D., & Wilson, R. (2014). Legacy of the Beijing Olympic Games: A non-host city perspective. *European Sport Management Quarterly*, *14*(5), 485–502. <https://doi.org/10.1080/16184742.2014.947301>

- Maennig, W., & Porsche, M. (2008). *The feel-good effect at mega sports events: Recommendations for public and private administration informed by the experience of the FIFA World Cup 2006*. Univ. Hamburg, Fak. Wirtschafts- und Sozialwiss., Dep. Wirtschaftswiss.
- Maharaj, B. (2015). The turn of the south? Social and economic impacts of mega-events in India, Brazil and South Africa. *Local Economy*, 30(8), 983–999.
- Menard, S. (2007). *Handbook of longitudinal research: Design, measurement, and analysis*. Elsevier.
- Misener, L., & Mason, D. S. (2006). Creating community networks: Can sporting events offer meaningful sources of social capital? *Managing Leisure*, 11(1), 39–56.
- Müller, M., Wolfe, S. D., Gaffney, C., Gogishvili, D., Hug, M., & Leick, A. (2021). An evaluation of the sustainability of the Olympic Games. *Nature Sustainability*, 4(4), 340–348. <https://doi.org/10.1038/s41893-021-00696-5>
- Mutter, F., & Pawlowski, T. (2014). The monetary value of the demonstration effect of professional sports. *European Sport Management Quarterly*, 14(2), 129–152.
- Newman, D. B., Tay, L., & Diener, E. (2014). Leisure and subjective well-being: A model of psychological mechanisms as mediating factors. *Journal of Happiness Studies*, 15(3), 555–578.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.
- Oja, B. D., Wear, H. T., & Clopton, A. W. (2018). Major Sport Events and Psychic Income: The Social Anchor Effect. *Journal of Sport Management*, 1–15. <https://doi.org/10.1123/jsm.2016-0170>
- Oshimi, D., Yamaguchi, S., Fukuhara, T., & Taks, M. (2021). Expected and experienced social impact of host residents during Rugby World Cup 2019: A panel data approach. *Frontiers in Sports and Active Living*, 3, 628153. <https://doi.org/10.3389/fspor.2021.628153>
- Pawlowski, T., Downward, P., & Rasciute, S. (2014). Does national pride from international sporting success contribute to well-being? An international investigation. *Sport Management Review*, 17(2), 121–132. <https://doi.org/10.1016/j.smr.2013.06.007>
- Peterson, N. A., Speer, P. W., & McMillan, D. W. (2008). Validation of a brief sense of community scale: Confirmation of the principal theory of sense of community. *Journal of Community Psychology*, 36(1), 61–73.
- Pinquart, M., & Sörensen, S. (2000). Influences of socioeconomic status, social network, and competence on subjective well-being in later life: A meta-analysis. *Psychology and Aging*, 15(2), 187–224.
- Potwarka, L., Ramchandani, G., Castellanos-García, P., Kokolakis, T., Teare, G., & Jiang, K. (2021). Beyond the host nation: An investigation of trickle-down effects in the ‘Hometowns’ of Canadian athletes who competed at the London 2012 Olympic Games. *European Sport Management Quarterly*, 1–20. <https://doi.org/10.1080/16184742.2021.1941182>
- Preuss, H., & Hong, S.-P. (2021). Olympic Legacy: Status of Research. *Journal of Global Sport Management*, 1–7. <https://doi.org/10.1080/24704067.2021.1888028>
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American Community*. Simon and Schuster.

- Richmond, A. M., & Garmany, J. (2016). 'Post-Third-World City' or Neoliberal 'City of Exception'? Rio de Janeiro in the Olympic Era. *International Journal of Urban and Regional Research*, 40(3), 621–639.
- Ritchie, B. W., Shipway, R., & Cleeve, B. (2009). Resident perceptions of mega-sporting events: A non-host city perspective of the 2012 London Olympic Games. *Journal of Sport & Tourism*, 14(2–3), 143–167. <https://doi.org/10.1080/14775080902965108>
- Rocha, C. M. (2020). Temporal Variations in the Relationship Between Legacies and Support: A Longitudinal Case Study in Rio 2016 Olympic Games. *Journal of Sport Management*, 34(2), 130–146. <https://doi.org/10.1123/jsm.2019-0039>
- Rocha, C., Barbanti, V. J., & Chelladurai, P. (2017). Support of local residents for the 2016 Olympic Games. *Event Management*, 21(3), 251–268.
- Salkind, N. (2010). *Encyclopedia of Research Design*. SAGE Publications. <https://doi.org/10.4135/9781412961288>
- Schlegel, A., Pfitzner, R., & Koenigstorfer, J. (2017). The Impact of Atmosphere in the City on Subjective Well-Being of Rio de Janeiro Residents During (vs. Before) the 2014 FIFA World Cup. *Journal of Sport Management*, 31(6), 605–619. <https://doi.org/10.1123/jsm.2017-0108>
- Shank, M. D., & Beasley, F. M. (1998). Fan or fanatic: Refining a measure of sports involvement. *Journal of Sport Behavior*, 21(4), 435–444.
- Smith, L. R., Pegoraro, A., & Cruikshank, S. A. (2019). Tweet, Retweet, Favorite: The Impact of Twitter Use on Enjoyment and Sports Viewing. *Journal of Broadcasting & Electronic Media*, 63(1), 94–110. <https://doi.org/10.1080/08838151.2019.1568805>
- Taks, M., Littlejohn, M., Snelgrove, R., & Wood, L. (2016). Sport events and residential happiness: The case of two non-mega sport events. *Journal of Global Sport Management*, 1(3–4), 90–109.
- Taks, M., Oshimi, D., & Agha, N. (2020). Other- versus self-referenced social impacts of events: Validating a new scale. *Sustainability*, 12(24), 10281. <https://doi.org/10.3390/su122410281>
- Taks, M., & Rocha, C. (2017). Maakte Rio 2016 de Brazilianen gelukkig? [Did Rio 2016 make the Brazilians happy?]. In P. Hoover & K. Breedveld. In *The story of Rio 2016: De maatschappelijke betekenis van de Olympische en Paralympische spelen 2016 [The story of Rio 2016: The societal meaning of the Olympic and Paralympic games 2016]* (pp. 119–127). Mulier Instituut.
- Toohey, K., & Veal, A. J. (2007). *The Olympic games: A social science perspective* (2nd ed.). CABI Pub.
- Waitt, G. (2003). Social impacts of the Sydney Olympics. *Annals of Tourism Research*, 30(1), 194–215. [https://doi.org/10.1016/S0160-7383\(02\)00050-6](https://doi.org/10.1016/S0160-7383(02)00050-6)
- Wann, D. L., Schrader, M. P., & Wilson, A. M. (1999). Sport fan motivation: Questionnaire validation, comparisons by sport, and relationship to athletic motivation. *Journal of Sport Behavior*, 22, 114–139.
- Weed, M., Coren, E., Fiore, J., Wellard, I., Chatziefstathiou, D., Mansfield, L., & Dowse, S. (2015). The Olympic Games and raising sport participation: A systematic review of evidence and an interrogation of policy for a demonstration effect. *European Sport Management Quarterly*, 15(2), 195–226.

- Weimar, D., & Rocha, C. M. (2019). Does Distance Matter? Geographical Distance and Domestic Support for Mega Sports Events. *Journal of Sports Economics*, 20(2), 286–313. <https://doi.org/10.1177/1527002517724505>
- Welty Peachey, J., Borland, J., Lobpries, J., & Cohen, A. (2015). Managing impact: Leveraging sacred spaces and community celebration to maximize social capital at a sport-for-development event. *Sport Management Review*, 18(1), 86–98. <https://doi.org/10.1016/j.smr.2014.05.003>

Table 1

Factors, item wordings, factor loadings (λ), average variance extracted (AVE), and Cronbach's alpha (α)

Factors	Manifest variables	During the Games			After the Games		
		λ	AVE	α	λ	AVE	α
Subjective Well-Being			0.502	0.715		0.579	0.761
	Happiness	0.744			0.791		
	Life satisfaction	0.679			0.750		
Social Cohesion	Affects	0.702			0.741		
	Rio 2016 strengthens my relationships in the community		0.505	0.794		0.597	0.854
	I create new relationships in the community because of Rio 2016	0.618			0.777		
	I feel a strong connection to others because of the Games	0.592			0.676		
	Rio 2016 strengthens my sense of belonging in the community	0.820			0.825		
Community spirit			0.504	0.840		0.522	0.834
	Rio 2016 lifts my community spirit	0.773			0.809		
	I feel happy because Rio is hosting Rio 2016	0.694			0.720		
	I will celebrate with others due to Rio 2016	0.659			0.628		
			0.618	0.781		0.637	0.796
Feelings of (un)safety	Rio 2016 makes me feel unsafe because of potential terrorist attacks	0.897			0.890		
	The fact that Rio 2016 may attract terrorists frightens me	0.924			0.941		
	I am worried because of the increased levels of security due to Rio 2016	0.442			0.484		
			0.645	0.823		0.407	0.652
Community involvement	I was able to express my opinion about the organization of Rio 2016	0.566			0.496		
	I discussed the organization of Rio 2016 with other people in the community	0.872			0.623		
	I had conversations about community benefits from hosting Rio 2016	0.924			0.767		
Sport participation			0.767	0.904		0.822	0.932
	Rio 2016 sparks my interest in becoming more involved in sport and/or physical activity	0.870			0.905		
	My interest in sport and/or physical activity has increased because of Rio 2016	0.923			0.913		
	Hosting Rio 2016 inspires me to become more (or remain) involved in sport and/or physical activity	0.832			0.902		
Attitudinal involvement			0.662	0.946		0.677	0.950
	Boring-Exciting	0.668			0.570		
	Uninteresting-Interesting	0.720			0.681		
	Worthless-Valuable	0.768			0.847		
	Unappealing-Appealing	0.745			0.783		
	Useless-Useful	0.852			0.887		
	Not needed-Needed	0.830			0.837		
	Irrelevant-Relevant	0.950			0.954		
	Unimportant-Important	0.933			0.948		

Table 2
Differences between during and after Rio2016 in subjective well-being (SWB), social impacts and involvement

		During Rio2016		After Rio2016		<i>t</i>	<i>df</i>	<i>p</i>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
SUBJECTIVE WELL-BEING	Happiness ¹	4.61	0.86	4.64	0.78	-.499	801	.618
	Life satisfaction ²	2.98	0.49	2.96	0.49	.558	801	.577
	Affect ³	4.86	0.98	4.80	1.00	.915	798	.361
SOCIAL IMPACT EXPERIENCES ⁴	Social cohesion	3.47	1.45	2.60	1.50	8.095 12.49	755	< <
	Community spirit	4.04	1.66	3.39	1.68	2	755	.001
	Feelings of (un)safety	3.55	1.59	3.24	1.67	2.604 10.09	755	.009 <
	Community involvement	4.50	1.72	3.31	1.52	7	755	.001 <
	Sport participation	3.87	1.96	2.96	1.87	6.502	754	.001 <
ATTITUDINAL INVOLVEMENT ⁵		5.62	1.23	5.19	1.45	4.528	790	< .001

Note. ¹Happiness measures vary from 1 to 6. ²Life satisfaction measures vary from 1 to 4. ³Affects measures vary from 0 to 6.
⁴Social impact measures vary from 1 to 7. ⁵Attitudinal involvement measures vary from 1 to 7.

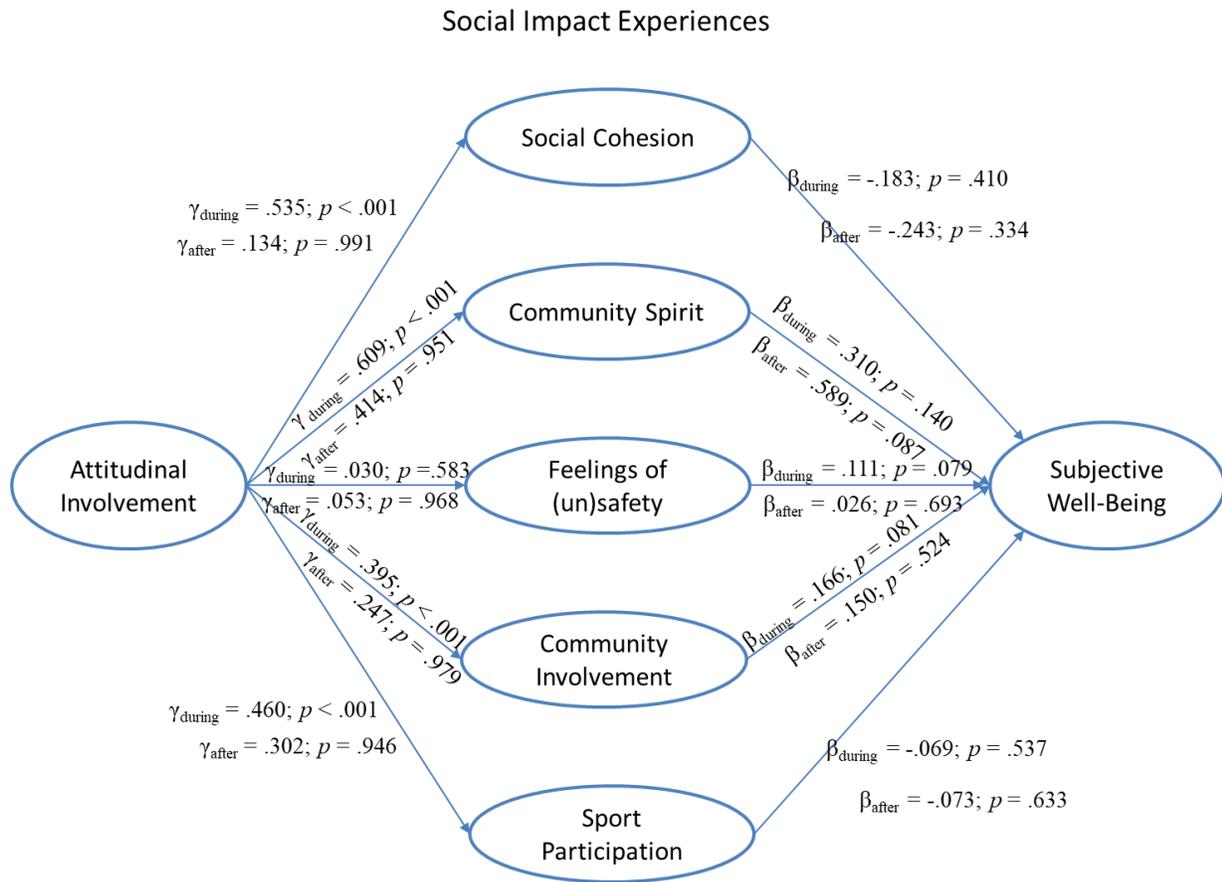


Figure 1. Structural relationships among attitudinal involvement, social impact experiences and subjective well-being during (top values) and after (bottom values) the Rio2016