

Risk and psychological return: a moderating role of COVID-19 risk perception in the impact of team identification on vitality after sport spectatorship in Tokyo

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Abstract

Purpose – The purpose of the present study was to investigate the impact of sport fans' team identification on their emotional experiences (i.e. vitality and game satisfaction) using two-wave data in a specific sport event during the declaration of the emergency statement in Japan. The study also aims to test the moderating effects of risk perceptions about COVID-19 and the game outcome on the relationship between team identification and vitality/game satisfaction.

Design/methodology/approach – The present research was conducted in the context of a sport event in Tokyo (the Japanese Rugby Top League 2020–2021 Season Playoff Tournament Final) during the declaration of the emergency statement period in Japan. The data were collected through a two-wave design (before and after the game) from the spectators of the event.

Findings – Team identification significantly predicted higher vitality after the game but not game satisfaction. Additionally, the moderation test found that sport fans with high social risk perception about the COVID-19 showed a positive relationship between team identification and vitality but not for the fans with low social risk perception.

Practical implications – The present results suggest that sport events can be advertised for sport fans as a tool to increase physical and psychological energy in their daily lives during the pandemic.

Originality/value – The present study demonstrated that team identification predicted greater vitality after the spectatorship during the COVID-19 outbreak. In particular, higher social risk perception was a significant catalyst to improve vitality after the game.

Keywords Pandemic, Sport events, Social identification theory, Team identification, Well-being

Paper type Research paper

Introduction

Sport spectatorship has the power to promote human well-being (Doyle *et al.*, 2016; Hallmann *et al.*, 2013). Specifically, highly identified sport fans obtain more psychological benefits (e.g. happiness, vitality and satisfaction) from sport spectatorship (e.g. Inoue *et al.*, 2017; Jang *et al.*, 2017, 2018). However, citizens have been strictly restricted in their participation in sport events due to the COVID-19 pandemic. Various sports events were canceled or postponed (e.g. 2020 Boston Marathon) due to the pandemic, which resulted in approximately \$160bn negative impacts on the sports industry (Futterman *et al.*, 2020). More specifically, Ehrlich *et al.* (2020) also estimated that the potential revenue fallout in 2020 in the Big Four leagues in North America (National Basketball Association (NBA),



National Football League (NFL), National Hockey League (NHL) and Major League Basketball (MLB) was over \$6.8bn. Additionally, the Tokyo Olympic Games were postponed one year, marking the first Olympic Games to be held without any spectators in history. Thus, the pandemic tremendously impacts the sport industry, which also assumes impacting sport fans' psychological aspects. Since sport events can be a crucial tool to improve sport fans' well-being (e.g. [Inoue et al., 2017](#)), sport events during the pandemic would also significantly impact human well-being.

Consumers' risk perception and/or risk-taking behavior during the COVID-19 pandemic is one of the significant interests for researchers (e.g. [Kim et al., 2021](#)). Especially in the service industry, where customers spend a certain amount of time in places of consumption to obtain benefits, risk aversion and perceived risk significantly impact consumer decision-making ([Sánchez-Cañizares et al., 2021](#); [Shin and Kang, 2020](#); [Yenerall et al., 2022](#)). Even after restrictions on outings and consumption activities in commercial establishments are lifted, the influence of COVID-19 concerns tends to persist ([Yenerall et al., 2022](#)). Sporting events are held under many restrictions to prevent the spread of infection, so the risk perception of sport fans can affect the psychological outcomes of attending sporting events. Thus, accumulating evidence of how risk perceptions affect sport fans' well-being in sport spectatorship contributes to the body of literature. Furthermore, understanding the effects of such risk perceptions contributes to developing strategies to maximize the benefits derived from consumption despite the perceived risk ([Sánchez-Cañizares et al., 2021](#); [Shin and Kang, 2020](#)). In previous sport spectatorship studies, there is much evidence regarding the positive effect of team identification on fans' positive emotional experiences, including fans' happiness and satisfaction (e.g. [Inoue et al., 2015, 2017](#); [Jang et al., 2017, 2018](#)). Therefore, team identification is an imperative cognitive attitude for sport fans ([Trail et al., 2005](#)) and has traditionally been studied in the context of sport spectatorship (e.g. [Matsuoka et al., 2003](#)). Although past research quite consistently argues the positive influence of team identification on fans' emotional experiences, consumers' risk perceptions would be significant moderating factors in the relationship as risk possibly amplifies positive emotional experiences ([Ayadi et al., 2017](#); [Shavit et al., 2014](#)). The current study also investigated the moderating effect of the spectators' risk perception about the COVID-19 before the game on the relationship between team identification and fans' emotional experiences (vitality and satisfaction) after the game.

Concomitantly, another potential moderator of the positive relationship between team identification and well-being is the game outcome. [Jang et al. \(2017\)](#) showed that the game outcome (winning vs losing) moderated the relationship between team identification and vitality. More specifically, the research showed that, in the winning condition, vitality was a significant mediator in the relationship between team identification and happiness, while the conditional indirect relationship was nonsignificant in the losing condition. However, most studies have adopted the cross-sectional survey or online experiment study designs. Thus, the present study is the first academic investigation in the real game circumstances (e.g. at the stadium) to examine the influence of team identification on fans' well-being (e.g. vitality and game satisfaction) using the data collected before and after the sport game spectatorship.

Putting prior speculation to the examination, the present study investigated the impact of cognitive attitude (i.e. team identification) on sport fans' emotional experiences (i.e. vitality and game satisfaction) using two-wave data (before and after the game) in a specific sport event during the declaration of the emergency statement in Tokyo, Japan. Additionally, the present study examined the moderating effects of risk perceptions about the COVID-19 (social and health risks) and the game outcome on the relationship between team identification and vitality/game satisfaction. The present study makes several contributions to the previously accumulated evidence using cross-sectional and experimental designs in the sport management literature. First, the present study added important evidence regarding the impacts of team identification

on fans' well-being after the game. Second, the authors found a significant moderating effect of a specific type of risk perception on the relationship. The findings provide important theoretical and practical contributions to the body of literature.

Literature review

Sport spectatorship and well-being

Scholars have increasingly examined the relationship between sport experiences and consumers' well-being (e.g. Kim and James, 2019; Kim *et al.*, 2017). Specifically, sport spectatorship has the potential to vitalize sport fans (Doyle *et al.*, 2016; Jang *et al.*, 2017). *Subjective vitality* is defined as "a sense of psychological and physical energy that is available to the self for life pursuits (Ryan *et al.*, 2008, p. 161)." Previous scholars describe vitality as the positive feeling of having energy available (Deci and Ryan, 2008), guilt-free energy (Ryan and Frederick, 1997) or calm energy (Thayer, 1997). Thus, vitality is considered a vital psychological resource and part of eudaimonic well-being (Ryan *et al.*, 2008) that can potentially impact psychological and physical health (Ryan and Deci, 2017). Specifically, research reported that during the lockdown period in Europe, an increase in sedentary time was associated with lower vitality (Cheval *et al.*, 2021). Therefore, vitality can be an essential target variable during the COVID-19 pandemic, specifically during the restricted period set by the government (e.g. under lockdown or the declaration of emergency statement).

Satisfaction, also interchangeably defined as happiness, often refers to a highly pleasant state (e.g. Argyle, 1987). Consequently, *game satisfaction* is a positive affective state toward the game based on the definition of customer satisfaction, referring to a pleasurable fulfillment toward products or services (Oliver, 1997). In the context of sport spectatorship, game satisfaction is essential for domain-specific well-being that can be associated with global satisfaction with life (Sato *et al.*, 2014, 2016). Since customers' well-being is one of the most crucial target variables in the modern consumer behavior literature (e.g. Anderson and Ostrom, 2015; Anderson *et al.*, 2013), domain-specific well-being, a significant indicator of personal mental health (e.g. Diener *et al.*, 2002), has a significant role in influencing global well-being. Thus, game satisfaction can also be a significant psychological benefit for sport fans. While both vitality and satisfaction are under the umbrella of positive emotional experience (Nix *et al.*, 1999), the sense of energy is a significant component for vitality but not for satisfaction. In other words, satisfaction is also a positive psychological state but does not necessarily require a sense of energy. As such, the research clarified that vitality is conceptually and statistically differentiated from satisfaction (Nix *et al.*, 1999). Therefore, the present research contained vitality and game satisfaction as different but essential positive emotional experiences for sport fans during the pandemic period.

Past studies have accumulated evidence regarding the impact of sport spectatorship on human well-being. For instance, a previous experimental study suggests that sport spectatorship at the stadium can increase individual well-being (Kawakami *et al.*, 2019). Kawakami *et al.*'s research revealed that sport spectatorship at a baseball stadium in Japan during a two-month period increased elders' executive functioning and decreased depressive symptoms. Additionally, live spectating experience in the last 12 months was significantly associated with spectators' life satisfaction (Inoue *et al.*, 2017). Jang *et al.* (2017) demonstrated the positive impact of spectatorship on sport fans' vitality in the experimental design study. Thus far, the evidence indicates that sport spectatorship can boost human well-being, including vitality and satisfaction.

Team identification and well-being

In sport management research, team identification is a key variable to predict spectators' well-being (Inoue *et al.*, 2015, 2017). For example, a study indicated that team identification was positively associated with life satisfaction among professional sport fans in the USA

(Inoue *et al.*, 2017). Furthermore, scholars demonstrated that team identification was positively correlated with game satisfaction (Trail *et al.*, 2005; Yoshida *et al.*, 2015). Using an experimental study design, Jang *et al.* (2017) also clarified the positive association between team identification and vitality. The theoretical explanation of the relationship between team identification and well-being can be adopted by social identity theory (SIT; Tajfel and Turner, 1979), which defines social identity as “that part of an individual’s self-concept which derives from his knowledge of his membership of a social group together with the value and emotional significance attached to that membership” (Tajfel, 1978, p. 63). Specifically, team identification refers to social identification with a specific team which is the symbolic presence of a social group (e.g. Inoue *et al.*, 2017, 2022; Lock and Heere, 2017). According to the theoretical perspectives, social identification is a psychological engagement in a specific group which can significantly influence the person’s well-being, including meaning, self-esteem and life satisfaction (Haslam *et al.*, 2009; Inoue *et al.*, 2022).

Watching a favorite team’s game at the stadium is similar behavior to favorite brand consumption, which is strongly connected with emotional experiences (e.g. satisfaction). Scholars suggest that spectating behavior for the individual with higher team identification can be considered as more internalized behavior (e.g. Jang *et al.*, 2017, 2018), therefore, in turn, acquiring more affective responses as a result of engaging in the behavior with an internal locus of causality (cf., Ryan and Deci, 2017). For instance, the brand attachment was significantly associated with positive emotional well-being (Aureliano-Silva *et al.*, 2018). Also, a past experimental study (Nix *et al.*, 1999) demonstrated that an external locus of causality negatively affects vitality compared to an internal locus of causality, while people increased their energy levels (e.g. vitality) after engaging in volitional behaviors (Choi and Fishbach, 2011; Laran and Janiszewski, 2011). The results suggest that behaviors motivated by an internal locus of causality (e.g. self-identification: watching a favorite team’s game) would enhance human vitality (Ryan *et al.*, 2008). Indeed, team identification is a significant determinant of fans’ vitality in the sport fan behavior research (e.g. Wann and Craven, 2014). The relationship between team identification and vitality has also been supported in the laboratory setting (Jang *et al.*, 2017). Therefore, team identification is likely to impact sport fans’ vitality after the game. Additionally, previous studies showed that customers more favorably evaluated the products (i.e. positive affective responses) when the consumers perceived that the products link with their social identity (e.g. Yoshida *et al.*, 2015; White *et al.*, 2012). Yoshida and James (2010) operationalized game satisfaction as a positive affective evaluation of the game based on Oliver’s (1997) definition of customer satisfaction. Consequently, we also expected that team identification would predict a more favorable game evaluation by the sport fans (i.e. game satisfaction after the game).

H1. Team identification will significantly predict higher vitality and spectator satisfaction after the game.

The moderating role of risk perception

Risk perception is an anticipation of a possible loss that occurs when a decision has been made (Stone and Grønhaug, 1993). Risk perceptions often have been conceptualized as a multi-dimensional concept (e.g. Fuchs and Reichel, 2006), and the multi-dimensional risk perception has been investigated in the context of sport spectatorship (e.g. Carroll *et al.*, 2014). The present study included physical, psychological and social risk perceptions as the risks are suitable for the present research context. Risk-taking behaviors show up when a decision (e.g. participating in a sport event at a stadium during a pandemic) may involve several undesirable consequences (Byrnes *et al.*, 1999), indicating that behaviors under the anticipation of harmful outcomes can be operationalized as risk-taking behavior. Specifically, during the pandemic, people drastically increased their perception of risk for

the uncertain disease (Wise *et al.*, 2020). Thus, participation in sport events during the declaration of emergency statement is considered a risk-taking behavior.

In consumer behavior research, scholars have traditionally investigated consumer risk-reduction strategies based on the idea that risks should be minimized to make a beneficial decision (Dowling and Staelin, 1994; Mitchell and McGoldrick, 1996). However, people often emotionally engage in risky behaviors without rational calculations. Thus, researchers more recently proposed another perspective from a different angle, pointing out that risk can be a source of boosting positive emotions (Ayadi *et al.*, 2017; Shavit *et al.*, 2014). Ayadi *et al.* (2017) conducted three experiments, resulting in risk-taking behaviors (e.g. skydiving) and indeed enhanced ex-post happiness (after a risky behavior); consequently, the results suggest that risk perception may become a significant factor influencing consumers' emotional experiences. The points can also be explained by a psychological risk-return model based on behavioral decision theory (Weber *et al.*, 2002). The model posits that individuals will engage in behaviors if they perceive its benefit over the risk (Weber and Johnson, 2009). Higher risk perception in terms of COVID-19 implies that the person possesses the feeling that the situation is uncertain, as risk perception is an experience of uncertainty (Zinn, 2008). Also, uncertainty can be a source of customers' positive attitudes toward products (Shen *et al.*, 2019). Therefore, the feeling evoked by the uncertainty (COVID-19) would amplify the positive or negative emotional experiences after the risk-taking behavior (e.g. watching sports at the stadium during the COVID-19 pandemic) as similar to the high risk and high return relationship (e.g. gambling).

A recent consumer behavior study using two-wave data (before and after the COVID-19 outbreak), in fact, revealed that the COVID-19 outbreak moderated the relationship between consumers' cognitive and affective attitudes (Kim *et al.*, 2021). More specifically, the research evidenced that the relationship between cognitive and affective attitudes after the COVID-19 outbreak was higher than the relationship before the outbreak. This point is also congruent with previous evidence, which showed that the relationship between destination image (cognitive) and tourism satisfaction (affective) was higher for the tourist with higher risk perception (Tavitiyaman and Qu, 2013). Applying the empirical evidence and the theoretical perspectives to the present study, risk perceptions regarding COVID-19 would moderate the relationship between team identity (cognitive attitude toward sport team) and vitality/game satisfaction (positive emotional experiences). Authors expect highly identified fans to have a more psychological return when they perceive higher risk perceptions about COVID-19 regardless of the type of risk. The second hypothesis for the study was as follows:

- H2. Perceived risk of COVID-19 infection will moderate the relationship between team identification and fans' well-being (vitality and game satisfaction) after the game. More specifically, the person with higher risk perceptions will magnify the positive impact of team identification on vitality and game satisfaction.

The moderating role of game outcome

Event outcome has traditionally been investigated as a significant element influencing consumers' behaviors and evaluations of the product (e.g. Tsiros *et al.*, 2004; Weiner, 2000). Specifically, in the sport context, the game outcome has been considered an essential variable influencing fan behaviors and evaluations. For example, the game outcome impacts the fans' emotional experiences in the game (Jang *et al.*, 2017, 2018; Madrigal and Chen, 2008). Consequently, the evidence suggests that game outcome may become a determinant of spectators' vitality and satisfaction. For instance, Stieger *et al.* (2015) revealed that the game outcomes in the 2014 Federation Internationale de Football Association (FIFA) World Cup are temporally related to the spectators' subjective well-being, suggesting that the game outcome impacts short-lasting mental well-being such as positive affect, vitality and satisfaction.

In addition to the impact of the game outcome on the affective type of mental well-being (e.g. vitality and satisfaction), the previous literature alludes that game outcome would moderate the relationship between a cognitive component of attitude and affective evaluation of the products. For example, [Madrigal and Chen \(2008\)](#) found that the game outcome moderated the relationship between team identification and satisfaction with the identified team's performance. Furthermore, [Jang et al. \(2017\)](#) revealed that the game outcomes significantly impact spectators' vitality for sport fans with higher team identification. Another study ([Jang et al., 2018](#)) found that highly identified fans felt greater happiness in their favorite team's winning condition. Consequently, the evidence suggests that the game outcome would be a significant moderator of the relationship between team identification and well-being. The third hypothesis for the study is as follows:

H3. The game outcome will moderate the relationship between team identification and well-being (vitality and spectator satisfaction). More specifically, for the fans whose favorite team won the game, team identification will positively impact vitality and game satisfaction. In contrast, for the fans whose favorite team lost, team identification will negatively impact vitality and game satisfaction.

Methods

Participants

In all, 518 participants completed the initial survey collected at the stadium, and 234 responses for the second survey were returned by mail (response rate was 45.2%). All responses were returned within two weeks after the game. In the data cleaning process, 66 participants were removed from the data analyses since the participants did not indicate their specific fan team and the identification for the team. Therefore, the final samples who answered both the first and second surveys for the present study were 168 spectators ($M_{\text{age}} = 50.72$ and female = 45.8%). Among the participants, 51.8% ($n = 87$) were Suntory Sungoliath fans, while 48.2% ($n = 81$) were Panasonic Wild Knights fans. The threat of nonresponse bias was tested by comparing the demographics of the second survey participants with the participants who only answered the first survey. The results of the independent sample *t*-test indicated that there are no significant differences in gender, age, fan status and household income, suggesting no nonresponse bias.

Research design

In the present study, data were collected from sport fans through a two-wave design (before and after the game) to test the hypotheses. The data at Time 1 were obtained directly from the spectators at the stadium before the game, and the data at Time 2 were collected after the game. This design can reduce some concerns commonly reported in sport management research, such as the common method variances ([Podsakoff et al., 2003](#)). In the cross-sectional study design, correlations between the variables measured using psychometric measurements (e.g. questionnaire) would be overestimated. Also, the variable assessed at the same time point cannot explain causal relationships ([Hayes, 2017](#)). Therefore, the present study design can demonstrate some significant advantages in terms of the evidence clarified by the research over the evidence previously shown by utilizing the cross-sectional studies.

Study context and data collection procedure

The present research was conducted in the context of a sport event in Tokyo, Japan (the Japanese Rugby Top League 2020–2021 Season Playoff Tournament Final) during the 3rd declaration of emergency statement period (from April 25, 2021, to June 20, 2021) in Japan.

During the same period, the number of spectators of the sport events was restricted by the Japanese government as at most 5,000 people could enter the stadium for the event.

The authors recruited the participants at the Prince Chichibu Memorial Rugby Stadium right before the game of the Japanese Rugby Top League 2020–2021 Final (Panasonic Wild Knights vs. Suntory Sungoliath) on May 23, 2021. The first surveys (before the game) were conducted in the stadium after the venue opened until the game started. Before distributing the questionnaires, 15 trained surveyors, who are undergraduate and graduate students specializing in sport marketing, observed spectators' gender and age in the block to which each surveyor was assigned. Each surveyor estimated the proportions of those demographic factors and distributed and collected the samples, considering the selection of samples that reflected those proportions. By adopting such a quota sampling method, the authors attempted to increase the representativeness of the sample to the population. Each surveyor has been educated on a quota sampling method in the field study by taking a one-hour workshop from the second author of the study.

The first survey measured demographics, fan status, team identification and risk perception regarding the COVID-19 at the game, while the questionnaire for the second survey (after the game) included items to measure subjective vitality and game satisfaction. When returning the filled first questionnaire to a surveyor, participants were given a stamped addressed envelope and the second questionnaire. The surveyor directly instructed the participants to fill out the second questionnaire as soon as they returned home and send it back to the authors' university using the envelope provided. The two questionnaires and the envelope were attached with the same numbering to match the data collected from the first and second surveys. In the present study, participants received a ballpoint pen as compensation for their study participation.

Measurements

Team identification. The present study operationalized team identification as a unidimensional construct (Trail *et al.*, 2005). The three-item measurement was adopted from a previous study (Trail *et al.*, 2005). Participants answered each question with a five-point Likert scale.

Vitality. The present study used five items from the Subjective Vitality Scale (Ryan and Frederick, 1997) to measure the participants' subjective vitality after the game. When asking about the degree of subjective vitality, the authors added a stem for each item to operationalize vitality as a positive experience after the sport event. A stem: "Since I have participated in the Rugby Top League final, . . ." was adopted for each item. A seven-point Likert scale was adopted.

Game satisfaction. Spectatorship (game) satisfaction after the game was measured using three times adopted by Yoshida and James (2010). The scale consists of three times, and responses were anchored by a seven-point Likert scale.

COVID-19 risk perception. The present study also measured risk perception in terms of COVID-19. To measure the COVID-19 risk perception, the authors slightly modified the social (three items), physical (two items) and psychological risk (two items) items (Carroll *et al.*, 2014; Laroche *et al.*, 2004) to fit the present study context and the COVID-19 situation. The authors also included a stem "About watching today's rugby game at the stadium in the midst of the COVID-19 outbreak, . . ." before each question. Authors expected the questionnaire would be divided into social-related risk perception, named social risk (e.g. "I worry that I may be held in lower esteem by my friends or family"), and health-related risk perception, including physical and psychological risk, which was named health risk (e.g. "I worry about being more likely to get infected with the COVID-19"), based on the preliminary risk perception classifications in marketing research (Jacoby and Kaplan, 1972). The present study only included two items each for physical and psychological risks to minimize the burdens for the

participants, and the space of the paper–pencil survey was limited. To test the factor structure of the risk perception, the authors performed a confirmatory factor analysis (CFA). According to the results of a CFA for the measurement of risk perception, as expected, the two-factor model (χ^2/df (degrees of freedom) = 11.69/7 = 1.67, comparative fit index (CFI) = 0.99, Tucker–Lewis index (TLI) = 0.98, root mean square error of approximation (RMSEA) = 0.06 and standardized root mean square residual (SRMR) = 0.03) showed adequate and better model fit indices compared to one-factor model (χ^2/df = 64.45/9 = 7.16, CFI = 0.87, TLI = 0.79, RMSEA = 0.20 and SRMR = 0.07). Therefore, the scale was operationalized in a two-factor structure, and the factors were named *social risk* and *health risk* in the present research. The scale was applied with a seven-point Likert scale ranging from 7 (strongly agree) to 1 (strongly disagree).

Game outcome. To test the moderating effect of the game outcome, the present study asked the participant’s fan status whether they were Suntory fans, Panasonic fans, or neither before the game. Based on the game result (Panasonic won; [Japan Rugby Football Union, 2021](#)), the Panasonic (won) and Suntory (lost) fans were dummy-coded into 1 and -1, respectively, to operationalize won vs lost team fans.

Data analysis

A CFA was performed using R software ([R Core Team, 2019](#)) to examine the measurement validity. According to the model fit indices based on [Kline’s \(2005\)](#) criteria, the values greater than 0.90 for CFI and TLI and lower than 0.08 for RMSEA, and Standardized SRMR can be considered as adequate model fit indices. The authors also calculated the AVE values to check the discriminant validity of each variable. According to [Fornell and Larcker \(1981\)](#), the AVE value greater than 0.50 can be considered adequate for the measurement validity.

To test our hypotheses, the authors used [Hayes’ \(2017\)](#) PROCESS macro model 1 to test the main effects of team identification on vitality/game satisfaction and the moderating effect of COVID-19 risk perception and the game outcome on the main relationships.

Results

Preliminary analysis

The missing data analysis showed that only 1.6% was the missing value of the entire data, indicating that those are negligible ([Tabachnick and Fidell, 2013](#)). Therefore, the authors performed expectation maximization for the missing data treatment using statistical package for the social sciences (SPSS) 27. The descriptive statistics and correlations are presented in [Table 1](#). Gender, age and household income were not correlated with vitality, while only age was significantly negatively correlated with spectatorship satisfaction. Thus, only age was included as a control variable in the model to test the hypothesized relationships.

	Mean	SD	1	2	3	4	5	6	7	8
1 Gender	1.46	0.50	–							
2 Age	50.72	11.40	–0.22**	–						
3 Team identification	3.85	0.90	–0.05	–0.01	0.92 ^a					
4 Vitality	5.76	1.07	–0.001	–0.09	0.24**	0.96 ^a				
5 Game satisfaction	6.36	0.98	–0.002	–0.20*	0.01	0.57**	0.83 ^a			
6 Social risk	2.92	1.31	0.22**	0.001	–0.04	–0.13	–0.07	0.84 ^a		
7 Health risk	2.76	1.32	0.03	0.07	–0.01	–0.05	–0.08	0.62**	0.81 ^a	
8 Game outcome	–0.04	1.00	–0.003	0.07	0.08	0.12	0.29**	0.17*	0.09	–

Note(s): * $p < 0.05$, ** $p < 0.01$ and a = Cronbach’s alpha

Table 1.
Descriptive statistics
and correlations

Measurement model

Authors ran a CFA to test the measurement validity for the each of the construct measured in the present study. The measurement model included team identification (T1), two types of risk perception (T1), subjective vitality (T2) and game satisfaction (T2). The result showed adequate model fit indices ($\chi^2/df = 188.10/124 = 1.52$; CFI = 0.97; TLI = 0.97; RMSEA = 0.06 and SRMR = 0.05) and AVE values for team identification = 0.79, vitality (= 0.83), game satisfaction = 0.64, COVID related social risk (= 0.64) and COVID-19 related health risk (= 0.53) were greater than 0.50. Accordingly, the present results statistically demonstrated the scale validities (see Table 2).

Hypotheses testing

Authors first tested both H1 and H2 concurrently; thus, the present study ran two models to test the relationship between team identification and two variables regarding spectators' well-being (i.e. vitality and satisfaction) and the moderating effect of the game's outcome using Hayes' PROCESS macro model 1. The result showed the main effect of team identification on vitality ($B = 0.29$, standardized error (SE) = 0.09, $t = 3.19$, 95%

Construct	Item	λ	CR	AVE
<i>Team identification</i>				
1	I consider myself to be a real fan of this team	0.83	0.92	0.79
2	I would experience a loss if I had to stop rooting for this team	0.90		
3	Being a fan of this team is very important to me	0.94		
<i>Vitality</i>				
"Since I have participated in the Rugby Top League final, ..."				
1	I feel alive and vital	0.95	0.96	0.83
2	I have energy and spirit	0.98		
3	I feel energized	0.98		
4	I feel alert and awake	0.91		
5	I am looking forward to each new day	0.70		
<i>Game satisfaction</i>				
1	You are satisfied with the game you watch at this stadium	0.87	0.83	0.64
2	You are happy with the game you watch at the stadium	0.62		
3	You are delighted with the game you watch at the stadium	0.88		
<i>Covid social risk</i>				
"About watching the today's rugby game at the stadium in the midst of the COVID-19 outbreak"				
1	I may be held in lower esteem by my friends or family	0.73	0.84	0.64
2	It could lead to embarrassing situations with my family or friends	0.91		
3	I would be concerned that it could reflect poorly on my personality	0.75		
<i>Covid health risk</i>				
"About watching the today's rugby game at the stadium in the midst of the COVID-19 outbreak"				
1	I worry about being more likely to get infected with the COVID-19	0.62	0.81	0.53
2	Watching the game at the stadium during the pandemic gave me a feeling of unwanted anxiety	0.74		
3	I would be concerned about my health due to the COVID-19	0.80		
4	Although I decided to come to stadium, it makes me feel psychologically uncomfortable	0.74		

Table 2. Factor loadings, construct reliability and AVE ($n = 168$)

Note(s): All factor loadings are significant at the $p < 0.001$ level. CR = composite reliability, AVE = average variance extracted. Measurement model fit: $\chi^2/df = 188.10/124 = 1.517$; CFI = 0.97; TLI = 0.97; RMSEA = 0.06 and SRMR = 0.05

confidence interval (CI) = [0.11, 0.46] and $p = 0.002$) but not game satisfaction ($B = 0.01$, $SE = 0.08$, $t = 0.11$, 95% CI = [-0.16 and 0.17] and $p = 0.91$). Thus, H1 was partially supported. Authors examined the moderating role of COVID-19 risk perception on the relationship between team identification and spectators' vitality after the game. The results showed that social related risk perception marginally moderated the relationship between team identification and vitality ($B = 0.12$, $SE = 0.07$, $t = 1.80$, 95% CI = [-0.01 and 0.25] and $p = 0.074$). Therefore, a simple slope analysis (Figure 2) was performed at ± 1 SD social-related COVID-19 risk perception (high vs low). As a result, the relationship between team identification and vitality was significant ($B = 0.43$, $SE = 0.12$, $t = 3.52$, 95% CI = [0.19 and 0.68] and $p < 0.001$) at the high level of social-related risk perception ($M = 4.23$) while the relationship was not significant ($B = 0.12$, $SE = 0.13$, $t = 0.91$, 95% CI = [-0.14 and 0.37] and $p = 0.37$) at the low level of social-related risk perception ($M = 1.61$). In contrast, health-related COVID-19 risk perception did not moderate the relationship between team identification and vitality ($B = 0.10$, $SE = 0.07$, $t = 1.36$, 95% CI = [-0.04 and 0.24] and $p = 0.17$). The main effect of social-related risk perception on vitality was significant ($B = -0.57$, $SE = 0.27$, $t = -2.12$, 95% CI = [-1.09 and -0.04] and $p = 0.04$) while health related satisfaction on vitality was not significant ($B = -0.44$, $SE = 0.28$, $t = -1.57$, 95% CI = [-0.99 and 0.11] and $p = 0.12$).

Next, authors tested the moderating roles of two types of COVID-19 risk perception on the relationship between team identification and game satisfaction. The results revealed that both social- and health-related COVID-19 risk perception did not significantly moderate the relationship (social: $B = 0.07$, $SE = 0.06$, $t = 1.13$, 95% CI = [-0.05 and 0.20], $p = 0.26$; health: $B = 0.09$, $SE = 0.07$, $t = 1.45$, 95% CI = [-0.03 and 0.22] and $p = 0.15$). The main effects of social-related COVID-19 risk perception on game satisfaction were also not significant (social: $B = -0.32$, $SE = 0.25$, $t = -1.29$, 95% CI = [-0.81 and 0.17] and $p = 0.20$), whereas health-related risk was marginally significant ($B = -0.46$, $SE = 0.26$, $t = -1.79$, 95% CI = [-0.97 and 0.05] and $p = 0.075$). Consequently, H2 was partially supported, specifically only social risk moderated the relationship between team identification and vitality (see Table 3).

Lastly, the results demonstrated that the moderating role of the game outcome on the relationship between team identification and vitality were not significant ($B = 0.08$, $SE = 0.09$, $t = 0.90$, 95% CI = [-0.10 and 0.26] and $p = 0.37$) while the relationship between team identification and game satisfaction was marginally significant ($B = 0.13$, $SE = 0.08$, $t = 1.66$, 95% CI = [-0.03 and 0.29] and $p = 0.099$). A simple slope analysis (Figure 1) revealed that both slopes were nonsignificant although the slopes were inversely inclined (won: $B = 0.11$, $SE = 0.11$, $t = 1.00$, 95% CI = [-0.11 and 0.33] and $p = 0.32$; lost: $B = -0.15$, $SE = 0.11$, $t = -1.34$, 95% CI = [-0.38 and 0.07] and $p = 0.18$, Figure 1). Additionally, the main effect of game result had also nonsignificant association with both vitality ($B = -0.20$, $SE = 0.36$, $t = -0.57$, 95% CI = [-0.91 and 0.50] and $p = 0.57$) and game satisfaction ($B = -0.21$, $SE = 0.31$, $t = -0.66$, 95% CI = [-0.83 and 0.41] and $p = 0.51$). Therefore, the present results did not support H3.

	Independent variable	Dependent variable	Coefficient	t-value	95% CI	p-value
H1	Team identification	Vitality	0.29	3.19	[0.11 and 0.46]	0.002
		Game satisfaction	0.01	0.11	[-0.16 and 0.17]	0.91
H2	Team identification × Game result	Vitality	0.08	0.90	[-0.10 and 0.26]	0.37
		Game satisfaction	0.13	1.66	[-0.03 and 0.29]	0.099
H3	Team identification × Social risk Team identification × Health risk	Vitality	0.12	1.80	[-0.01 and 0.25]	0.074
		Game satisfaction	0.07	1.13	[-0.05 and 0.20]	0.26
		Vitality	0.10	1.36	[-0.04 and 24]	0.17
		Game satisfaction	0.09	1.45	[-0.03 and 0.22]	0.15

Table 3.
Unstandardized
estimate, t-value, 95%
confidence intervals
and p-value for each
hypothesis test

Figure 1. Results of a simple slope analysis for testing the moderating effect of game outcome on the relationship between team identification and game satisfaction

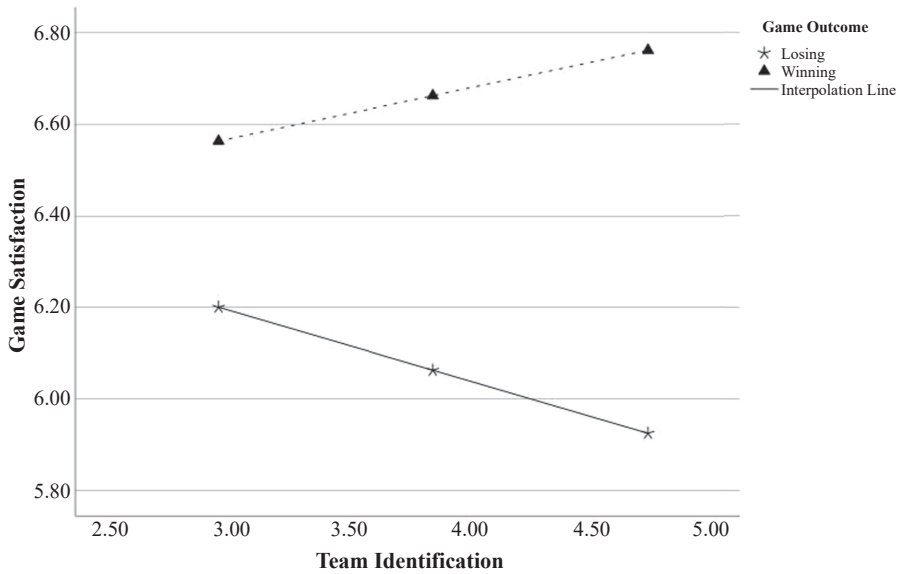
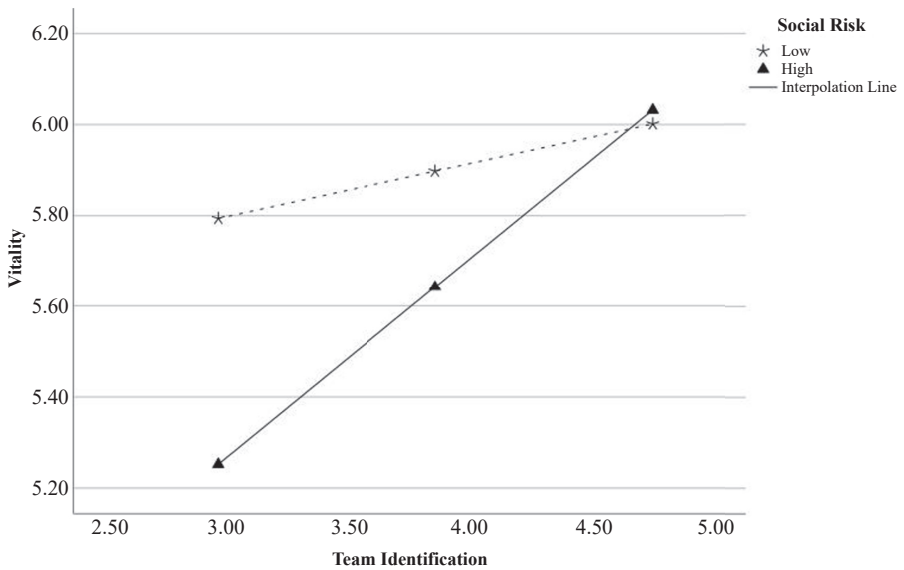


Figure 2. Results of a simple slope analysis for testing the moderating effect of social risk perception on the relationship between team identification and vitality



Discussion

The present study aims to investigate how sport fans' cognitive attitude (i.e. team identification) influences affective responses (i.e. vitality and game satisfaction) after participating in a sport event. The current research also tested the moderating effects of risk perception and the quality of favorite team performance (e.g. game outcome) on the impact of team identification on vitality/game satisfaction. The results showed that team identification

significantly predicted higher vitality after the game but not game satisfaction. Furthermore, team identification significantly predicted vitality more for the individual with higher social risk perception about COVID-19. Lastly, the present results showed that game outcome only marginally moderated the relationship between team identity and game satisfaction, although the relationship between team identification and game satisfaction for the winning and losing team fans was neither significant. The findings provide important theoretical and practical insight into the body of the literature in sport management.

In line with previous studies and SIT (Tajfel and Turner, 1979), the present findings showed that team identification predicted higher vitality of spectators after the game. The result was consistent with our hypothesis. As previous research showed that people enhance their energy levels (e.g. vitality) after the completion of volitional behaviors (Choi and Fishbach, 2011; Laran and Janiszewski, 2011), the present research supports the points in the context of sport spectatorship. Watching sport at the stadium for highly identified fans is a volitional activity; such behavior with an internal locus of causality should increase human vitality (Choi and Fishbach, 2011; Laran and Janiszewski, 2011; Ryan and Deci, 2017). As such, the highly identified fans increased vitality after spectating a game, which is a unique finding in the sport management literature. Although the significant relationship between team identification and vitality has been supported by the previous sport management research (e.g. Jang *et al.*, 2017, 2018), the current study added the evidence using a relatively unique study design. The present study showed a nonsignificant relationship between team identification and game satisfaction after the game, which is congruent with the results of a study by Matsuoka *et al.* (2003), which revealed an extremely weak correlation between those variables using a two-wave design (before and after the game). However, it is incongruent with the previous literature utilizing the cross-sectional study (e.g. Trail *et al.*, 2005; Yoshida *et al.*, 2015). The present finding suggests that there is a possibility that previous research overestimated the relationship between team identification and customer satisfaction because of the cross-sectional nature of the study design; therefore, the correlation between team identification and game satisfaction was inflated due to the common method variance (Podsakoff *et al.*, 2003). Thus, the results indicate that team identification does not predict the fans' game satisfaction itself. More evidence regarding the relationship needs to be accumulated using multiple time wave data.

The present study found the relationship between team identification and vitality was moderated by the level of perceived social risk. More specifically, as we expected, the relationship between team identification and vitality was greater for the fans with a higher perception of the COVID-19 social risk. The results were consistent with the previous literature in terms of risk-taking behaviors (e.g. Ayadi *et al.*, 2017; Shavit *et al.*, 2014). However, the present study only found the moderating role of risk perception regarding the social-related risk on the impact of team identification on vitality. The relationship may be related to the cultural uniqueness of Japanese sport fans. The overall scores of risk perception of the participants were relatively low (social = 2.92 ± 1.31 and health = 2.76 ± 1.32). However, the collectivistic nature of the Japanese society might foster the residents to pay more attention to other people rather than themselves (Hofstede, 2011), which should have resulted in the score of social-related risk perception being slightly higher than health-related risk perception in the present study. Also, the results are consistent with the socioemotional selectivity theory, which argues that young healthy people are more future-oriented while older people are more present-oriented because of the proximity to death (Carstensen *et al.*, 1999). Therefore, younger people make their decisions more emotionally. Social risk is not a risk that will lead to immediate death, but health risk should be more closely related to death. Since only social risk moderated the relationship between team identification and vitality, risk perception (uncertainty) can be a catalyst to amplify the affective responses after the event only when the risk is not closely related to the immediate death (Shavit *et al.*, 2014). The

social risk, unlike the health risk, is not directly related to the immediate death; thus, the risk was a more significant risk factor for the Japanese sport fans, and it moderated the significant relationship between team identification and vitality.

Lastly, regarding the investigation of the moderating role of the game outcome, the results identified (1) a nonsignificant moderating effect of the game outcome on the relationship between team identification and vitality, while (2) the moderating effect of the game outcome on the relationship between team identification and game satisfaction was marginally significant. Although a simple slope analysis found that the slopes were reversely skewed depending on the identified team's game outcome (Figure 2), each slope for the fans of the winning and losing teams did show a nonsignificant association between team identification and game satisfaction. Therefore, the results indicated that the game outcome is not a significant moderator of the relationships. The results were inconsistent with previous empirical evidence (Jang *et al.*, 2017). However, Stieger *et al.* (2015) reported that the impact of the game outcome on fans' well-being was only an immediate influence. Since vitality and game satisfaction were assessed after the participants returned to their homes, the assessments were not immediately measured after the game. The procedures are different from Jang *et al.*'s experimental study as they assessed the measurement right after the manipulation. Thus, the game outcome might not be associated with fans' vitality and game satisfaction in the present study. Our findings suggest that game outcomes cannot function as an influential factor in the relationship between team identification and emotional experiences (vitality and game satisfaction) after the game.

Practical implications

The present findings can provide many practical implications for sport event management practitioners. First, the present results showed that sport fans could be vitalized regardless of whether their identified teams were won or lost. The findings are good news for the marketers and promoters of sport events and sport fans since vitality is one of the crucial indicators of mental and physical health. The results suggest that watching sports at the stadium may improve personal mental health (Kawakami *et al.*, 2019) through increased vitality. Thus, marketers can advertise sport events for various individuals as a tool to increase physical and psychological energy in their daily lives.

Second, the present study can provide important insight into the impact of hosting sport events during the depressing pandemic period. Although the present study did not investigate the service environments of the sport event, hosting a sport event even in the declaration of the emergency statement had some positive social impacts. If the sports fans who came to a sporting event amid a declared state of emergency received a greater return of energy, despite the potential risks, it is a true testament to the power of sports. The present result alludes to the potential that sporting events can be a tool to energize people and revitalize the community. Therefore, sport event organizers can advocate through the public media with government endorsement that sport events can vitalize people during the distressing period, which may have a significant appeal for funding due to the social impact of sport events on sport fans.

Lastly, the results suggest that team identification plays an important role in the psychological outcomes of high social risk consumption, which have imperative implications for marketing strategies for high social risk products. Social risks related to infectious diseases can be attributed to uncertainties in the public's knowledge of the infectious diseases. The social risk perceived by spectators can be reduced if society is aware that the risk of infection at outdoor sports games is considerably low if appropriate infection prevention measures are taken. Developing strategies to reduce consumers' perceived risk and maximize their benefits would not only be crucial during a pandemic (Sánchez-Cañizares *et al.*, 2021; Shin and Kang, 2020) but would also be an essential marketing strategy on a daily

basis. However, even in the presence of such social risks, fans with high team identification seem to acquire more psychological benefits. Thus, for consumption that is perceived as uncertain in society, it is considered to be one of the effective strategies to first have consumers with a strong attachment to the product to purchase it and then spread the benefits of the product. For example, newly invented products before they have penetrated society tend to be shunned because of their uncertainty (Hirunyawipada and Paswan, 2006). Therefore, a more proactive approach to loyal customers is recommended in the marketing of products and services where social risks in consumption are likely to be perceived.

Limitations and future research

The present study has several limitations. The context of the study is unique since the sport event was hosted during the pandemic period, especially when the government declared an emergency statement. Also, the data were only collected at the Japanese Rugby Top League Final because of the restriction of the sport events hosted during the pandemic. The regulations also limited the number of participants in the current study as we could distribute about only 600 questionnaires to the fans at the stadium. The future study may need to collect more participants in a variety of designs. More preferably, follow-up questionnaires after the event (e.g. two months later after the event) would help more deeply understand the psychological mechanism underlying the relationship between cognitive attitude (e.g. team identification) and affective experiences and evaluation (e.g. vitality and game satisfaction) regarding sport consumption.

Second, the current results found that the mean score of game satisfaction was high ($M_{\text{game satisfaction}} = 6.36$ and $SD = 0.98$), indicating that most of the participants in the present study showed relatively high game satisfaction. The reason for the high game satisfaction can be considered that the game was the final game of the playoff tournament in the season. Also, many sport events were canceled or operated without spectators; therefore, the rugby games in Tokyo during the season had not been held with spectators. Hence, after the long separation from the rugby game, spectatorship at the stadium might be the reason for the increased game satisfaction.

As a future direction in sport management research, future studies need to examine how increased fans' vitality after the game would predict future behaviors (e.g. revisit to the game). The previous study indicated that positive experiences about the products would increase the likelihood of repurchasing behaviors (Kuikka and Laukkanen, 2012). Therefore, a more complicated study design, which includes a follow-up survey, would be required (i.e. a longitudinal study design) to clarify the long-term benefits of sport spectatorship.

Conclusion

The present study found imperative knowledge in the sport events research, especially during the COVID-19. The findings demonstrated that team identification predicted greater vitality after the spectatorship but not game satisfaction. Additionally, the spectatorship with higher social risk for highly identified fans significantly and positively impacted their vitality after the game. The results proved that high risk and high psychological return relationships have only emerged for the highly identified fans with high social risk perception rather than health-related risk.

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