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Living on the edge: Psychological drivers of athletes' intention to re-patronage extreme sporting events

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1 **Raggiotto, F., & Scarpi, D. (2020). Living on the edge: Psychological drivers of**  
2 **athletes' intention to re-patronage extreme sporting events. *Sport Management***  
3 ***Review*, 23(2), 229-241.**  
4

5 **Abstract**

6 Extreme sports are a multi-billion-dollar marketing phenomenon. The authors explore in the  
7 context of extreme sports the relationship between risk-taking attitude, perceived control,  
8 self-enhancement, event image, and re-patronage intention, through the lens of edgework  
9 theory and cognitive adaptation. The authors advance a theoretical model of multiple  
10 moderated mediation that provides insights for understanding what drives consumer-athletes'  
11 intention to be loyal to extreme sporting events. The authors test the model with the  
12 PROCESS macro in SPSS on 500 active participants in such events and find that risk-taking  
13 leads to feelings of self-enhancement, especially when consumers feel in control of the risks  
14 they face. Self-enhancement in turn leads to re-patronage intention, especially when  
15 consumers have a positive image of the event.

16

17 **Keywords:** edgework; risk-taking attitude; self-enhancement; perceived control; event image

18

19

## 1 **1. Introduction**

2 Extreme sports are activities that subject the participant to great physical and mental  
3 challenges, such as speed, height, depth, and natural forces, and that often involve risks  
4 and/or extreme endurance (Gyimóthy & Mykletun, 2004). They are characterized by the  
5 demonstration of physical prowess and a particular attitude toward the world and the self:  
6 they are sports where individuals push the limits of their personal safety and/or endurance  
7 (Atkinson, 2008; Le Breton, 2000). Examples are BMX (Bennett & Lachowetz, 2004),  
8 skydiving, base jumping, cliff diving, and ice climbing (Brymer & Houge Mackenzie, 2016)  
9 as well as bungee jumping, caving (Bentley, Page, & Laird, 2001), and triathlon (Atkinson,  
10 2008, for extreme endurance). For instance, as Kusz (2003) noted about BMX performers,  
11 they are “individuals who love taking risks, who love pushing their bodies to their physical  
12 limits, who demand our admiration because they are brave enough to take chances and  
13 willing to risk significant injury in order to successfully pull a trick” (p. 154).

14 Similarly, while triathlon is not as perilous as skydiving or heli-skiing, it is an ultra-  
15 endurance discipline that pushes individual physical limits due to the extraordinary effort  
16 required (Le Breton, 2000). Extreme endurance sports drain participants to the point of  
17 complete physical (Knechtle et al., 2007) and mental (Atkinson, 2008) exhaustion and often  
18 collapse, in a mimetic process of symbolic death, liminality, and rebirth through survival  
19 (Holt et al., 2014; Le Breton, 2000). Accordingly, triathletes articulate a sense of collective  
20 stress-seeking (Le Breton, 2000) and edgework (Lyng, 1990) as motivation for their  
21 participation. As Atkinson (2008) summarizes, it is about the grueling experience of being  
22 physically and psychologically completely drained.

23 The number of athlete-consumers in extreme sports is large and growing fast  
24 (Xtremesports, 2008). For instance, since 2014 more than 22 million people each year  
25 regularly participate in extreme sporting events (TBI, 2014). In extreme sports, over 70

1 percent of revenues come from active consumer-athletes (ISPO, 2016; NerdWallet, 2015;  
2 Nielsen Scarborough, 2017), whose average income is also significantly higher than the  
3 national average (Severson, 2011), making them a large and appealing target market, with a  
4 huge potential.

5         Thus, it is no surprise that to attract extreme athletes, many extreme sports disciplines  
6 have developed specific events, such as the BMX World Championship. Events nowadays  
7 represent the core component of the extreme sports industry and are the occasion for and  
8 context where participants gather to compete. Many of these events have grown from niche  
9 sports to worldwide competitions, and today they attract thousands of athlete subscriptions  
10 from around the world, having become brands worth millions. For instance, Ironman is worth  
11 US\$650 million and attracts about 3,000 athletes generating revenues of US\$932 million  
12 (Ozanian, 2017; Roethenbaugh, 2017). Athletes' re-patronage for such events is a key factor  
13 for guaranteeing future revenues and the success of the event in time (Shonk & Chelladurai,  
14 2008), no less than it is for events generally (Tanford & Jung, 2017). As such, re-patronage  
15 intention is addressed as the dependent variable in the present research, too. The centrality of  
16 re-patronage intention is witnessed by the number of scholars considering it as the major  
17 dependent variable, in a wide array of settings, from festivals (Baker & Crompton, 2000) to  
18 destinations (Stylos, Bellou, Andronikidis, & Vassiliadis, 2017; Yoon & Uysal, 2005) to  
19 tourism for traditional sports (Shonk & Chelladurai, 2008).

20         Yet, previous researchers have paid comparatively less attention to re-patronage  
21 intention for sporting events outside of traditional sports (e.g., football; Richelieu & Pons,  
22 2006). On one hand, this may be due to extreme sports' having gained momentum only  
23 relatively recently. On the other hand, as we address in the theoretical background, extreme  
24 athletes are psychologically different from the average person, so that the mechanisms  
25 driving their intention to re-patronage are triggered by different psychological levers.

1           The purpose of this study is to fill this gap by identifying the drivers of re-patronage  
2 intention for extreme sporting events. In the study of extreme sports, the literature suffers  
3 from imprecise models that do not fully address or reflect the lived experience of the  
4 participants (Brymer and Houge-McKenzie, 2016), because these models usually do not  
5 capture the core psychological dimensions of extreme sports participants (Lyng, 2008). Yet,  
6 scholars in psychology emphasize the importance of risk-taking attitude, perceived control,  
7 and self-enhancement in understanding the behavioral drivers of ‘extreme’ individuals. Thus,  
8 we use key concepts from the psychological literature (i.e., risk-taking attitude, perceived  
9 control, self-enhancement) that may constitute possible drivers of consumers’ re-patronage  
10 intention for extreme sporting events. Furthermore, we also include the concept of event  
11 image, as scholars in sports management suggest its importance in shaping participants’  
12 intention to take part in the event again in future (Kaplanidou & Vogt, 2007). By doing so,  
13 we extend the understanding of the behavior of extreme individuals as we link psychological  
14 constructs to managerially relevant outcomes, advancing a multiple moderated mediation  
15 conceptual model for re-patronage intention in extreme sports. Then, we test the model on  
16 hundreds of athletes participating in extreme sporting events, present the results, and discuss  
17 their theoretical and managerial implications.

18

## 19 **2. Literature review and hypothesis development**

20           Two theories can help illuminate the psychology of individuals facing extreme  
21 situations: cognitive adaptation theory (Taylor, 1983) and edgework theory (Lyng, 1990).  
22 The former examines regular individuals’ coping mechanisms in hazardous situations that  
23 they did not anticipate nor voluntarily seek. The latter addresses the psychological  
24 mechanism that extreme (or edgework) individuals adopt to cope with difficult and risky  
25 situations that they did voluntarily seek, such as participation in extreme sporting events

1 (Laurendeau, 2006). Despite the difference in premises, both theories highlight the  
2 importance of perceived control and the feeling of the self (Gupta & Bonanno, 2010; Celsi,  
3 Rose, & Leigh, 1993). In other words, regardless whether the hazardous situations came as an  
4 accident or were deliberately chosen, the two theories agree that individuals face adversities  
5 in their striving to affirm the self and reach a condition of self-improvement. This can be  
6 witnessed, for instance, in the higher levels of self-care and self-esteem exhibited by  
7 individuals diagnosed with potentially debilitating health problems (Helgeson, 2014). After  
8 adverse events, individuals strive to regain control over their lives by reinforcing self-  
9 enhancement and self-esteem (Yan & Bonanno, 2015). Yet, such self-centered processes  
10 require that individuals achieve perceptions of control, whether through training or through  
11 illusions such as optimism and self-aggrandizement (however unrealistic).

12           Furthermore, cognitive adaptation and edgework theory are linked with actions and  
13 behavioral intentions in order to achieve both higher control and a better self. Typical  
14 examples involve more frequent medical checks, working more on positive relationships  
15 (Helgeson, 2014) and training more intensively (Brymer, 2010), all of which can help people  
16 feel better equipped to face adversities. According to both theories, extreme situations force  
17 individuals to push their physical and/or psychological limits; as a result, individuals perceive  
18 that they have undergone an ordeal that has changed them for the better. As a consequence,  
19 their behavior will be driven by a combination of perceived control over the situation and a  
20 desire for enhancing the self. Thus, the psychological characteristics of edgework individuals  
21 shape the way they live everyday life, and are likely to influence their sport consumption  
22 (Thompson & Üstüner, 2015) and event participation (Benckendorff & Pearce, 2012), which  
23 help to satisfy their need for risk (Laurendeau, 2006) and self-fulfillment (Lyng, 2008).

24

## 1 **2.1. Edgework theory and cognitive adaptation theory**

2 Extreme sporting events are a highly relevant domain not only from a managerial but  
3 also from a theoretical point of view, as classic marketing-related aspects appear to work  
4 differently here (Puchan, 2005; Self, Henry, Findley, & Reilly, 2007), and scholars in  
5 psychology have shown that individuals engaging in extreme activities are different from the  
6 average person (Lyng, 1990). Behavioral drivers in extreme contexts work differently than  
7 they do in traditional ones (Laurendeau, 2006), for instance, because risks are sought rather  
8 than avoided (Milovanovic, 2005). Further, athletes voluntarily attend extreme sporting  
9 events to undergo extenuating or life-threatening ordeals in order to push forward their  
10 physical and psychological limits (Brymer & Houge Mackenzie, 2016), feeding the idea of  
11 belonging to an elite group of “superior” men/women (Lyng & Matthews 2007).

12 Individuals participating in extreme sports behave and think differently from the  
13 average consumer and from traditional athletes (Buckley, 2012): they perceive the painful  
14 challenges and threatening difficulties offered by these extreme events as positive rather than  
15 negative, have a high tendency to seek sensations, and enjoy activities that push their physical  
16 and psychological limits, as they attribute a cathartic value to difficulties and risky challenges  
17 (Laurendeau, 2006). To explain the behavior of those who love extreme activities,  
18 psychology scholars have advanced edgework theory (Brymer & Houge Mackenzie, 2016;  
19 Lyng 1990).

20 According to edgework theory, individuals who engage in risky activities (such as  
21 extreme sporting events) voluntarily seek out challenges (Bunn, 2017), pain, and potential  
22 danger (Laurendeau, 2006) and are driven by feelings of self-enhancement and invincibility  
23 through struggle. They are driven overwhelmingly by the need to identify, assess, and push  
24 forward their own personal limits. The constant quest for edgework individuals is to surpass



1 what has been achieved in the past (Allman et al., 2009), a process that scholars in  
2 psychology defines as pushing the edge, and that—often—involves exposing oneself even to  
3 deadly threats.

4 Cognitive adaptation theory (Taylor, 1983), too, address drivers, motivations, and  
5 psychological dynamics of individuals who face extreme—even threatening—situations “in  
6 which the individual’s failure to meet the challenge at hand will result in death, or at the very  
7 least, debilitating injury” (Lyng, 1990, p. 857), such as extreme sports. According to  
8 cognitive adaptation theory (Taylor, 1983), after experiencing adversity individuals assess  
9 how much the adversity fits with their present self-image, activating self-affirmation  
10 processes to preserve (or enhance) their identity with adequate and fitting behaviors (Steele,  
11 1988) because, for instance, the adversity might disfigure them or compromise their self-  
12 sufficiency (Schulz & Decker, 1985). Through attempts to regain perceptions of control over  
13 their own life, eventually individuals acquire stronger self-esteem and reach self-  
14 enhancement (Davis, Campbell, Hildon, Hobbs, & Michie, 2015). Although threatening  
15 events can occur unexpectedly, a similar psychological pattern can be found when they are  
16 actively sought by individuals, as is usually the case in extreme sports (Clough, Houge  
17 Mackenzie, Mallabon, & Brymer, 2016).

18 From cognitive adaptation and edgework theory, we derive the constructs of risk-  
19 taking attitude, perceived control, and self-enhancement. However, whereas previous  
20 researchers investigated what leads a person to become an edgework individual, from a  
21 psychological perspective, we focus on the managerial implications of addressing a customer  
22 base of edgework individuals, such as extreme athletes participating in extreme sporting  
23 events.

24

## 1 **2.2. From risk-taking to self-enhancement**

2 Voluntary risk-taking refers to undertaking risky activities without coercion and with  
3 the acknowledgment that risks are being confronted (Milovanovic, 2005). It refers to the  
4 willingness to explore and push one's own limits, both physically and psychologically  
5 (Brymer & Houge Mackenzie, 2016), and characterizes extreme consumer-athletes  
6 (Gyimóthy & Mykletun, 2004). According to edgework theory, a voluntary risk-taking  
7 attitude is a key characteristic of extreme athletes (Laurendeau, 2006). In this regard,  
8 Dewhirst and Sparks (2003) defined risk-taking attitude as a way to reach self-enhancement  
9 (e.g., deciding to start smoking to be perceived as cool), while Taylor and Hamilton (1997)  
10 conceptualized risk-taking attitude as a way to escape uncomfortable personal states (e.g.,  
11 engaging in sensationally dangerous activities to escape depression). Other scholars  
12 highlighted instead the social-symbolic meaning of risk-taking as a way to join an ideal group  
13 of "sophisticated people" (Allman et al., 2009, p. 239), where taking risks is akin to  
14 participating in an initiation ritual, a catharsis, or purification through voluntarily undergoing  
15 ordeals.

16 Despite slight differences in perspective, these scholars agree that the outcome sought  
17 (consciously or unconsciously) by individuals facing threatening events (Gupta & Bonanno,  
18 2010) such as extreme athletes (Gyimóthy & Mykletun, 2004) is self-enhancement, which  
19 can be defined as coming closer to an ideal self. Self-enhancement appears intimately related  
20 to edgework, according to Lyng's (1990) conceptualization, "involving, most fundamentally,  
21 the problem of negotiating the boundary between chaos and order" (p. 855). The continuous  
22 need to extend personal limits entails strong, symbolic meanings for extreme athletes  
23 (Allman et al., 2009). The ability to confront increasing risks is highly rewarding for  
24 edgework individuals, who, if they succeed, perceive themselves as legitimate members of a  
25 small elite (Lyng & Matthews, 2007) who are blessed with an uncommon "survival instinct"

1 (Laurendeau, 2006). Coherently, words such as *independence*, *ideal self*, *self-fulfillment*, and  
2 *self-realization* were recently found to be used by individuals to describe extreme sporting  
3 events (Brymer & Houge Mackenzie, 2016; Hardie-Bick & Bonner, 2016), where athletes are  
4 motivated to perform incremental efforts (e.g., in terms of distance covered) on a path toward  
5 reaching personal limits (Shoham, Rose, & Kahle, 2000; Verchère, 2017) and pushing them  
6 forward (Allman et al., 2009).

7 In summary, combining the different perspectives from which previous researchers  
8 have investigated risk-taking attitude, one might see a consistent link with self-enhancement.  
9 Accordingly, we advance the following hypothesis:

10 **Hypothesis 1:** Risk-taking attitude will have a positive impact on self-enhancement.

### 11 **2.3. The role of perceived control**

12 Risk-taking tendency does not mean recklessness; on the contrary, often edgework  
13 individuals are “control freaks” (Zinn, 2015). Self-enhancement is furthered or even driven,  
14 in extreme events, by the need to (re)acquire the perception of being in control, of being able  
15 to overcome an apparently invincible obstacle (Yan & Bonanno, 2015).

16 Perceived control is often conceived in terms of the theory of planned behavior  
17 (Ajzen, 1991). Yet in the context of extreme sports, perceived control has a different  
18 significance, supported by both cognitive adaptation and edgework theory. Cognitive  
19 adaptation theory suggests that individuals coping with unexpected, harmful events strive to  
20 regain perceptions of control over their existence through self-enhancing actions and attitudes  
21 (Gupta & Bonanno, 2010). Similarly, the psychological perception of control is vital for  
22 edgework individuals (Lyng, 2008) and extreme sports practitioners are no exception (Celsi,  
23 Rose, & Leigh, 1993). For them, pushing the edge means extending their ability to maintain  
24 control over increasingly difficult situations (Milovanovic, 2005). Perceptions of control

1 foster a mindset of being able to successfully face challenges, allowing individuals to achieve  
2 dangerous goals and feel blessed by a survival instinct (Laurendeau, 2006), which is  
3 important when negotiating the edge (Lyng, 1990).

4 Consistently, scholars have highlighted the preeminent role of perceived control in  
5 edgework (Milovanovic, 2005) and cognitive adaptation (Questienne, Van Opstal, Van Dijck,  
6 & Gevers, 2016), as individuals push themselves to the limit of their ability to maintain  
7 control over a specific activity, threat, or challenge (Lyng, 2008) and continuously negotiate  
8 the edge of their competence and control over the activities they perform (Brymer & Houge  
9 Mackenzie, 2016). Participants understand the risks implied by the dangerous circumstances  
10 in which they place themselves, but try to deemphasize the hazards by accentuating their  
11 feeling of being able to exercise control over those risks (Doka et al., 1990; Natalier, 2001),  
12 for instance, through exercise and training and by gathering information about previous  
13 editions of a given sporting event. It is not that individuals believe themselves skilled enough  
14 to master any hazardous situation, or that they are unaware that many of those hazards cannot  
15 be foreseen. Instead, they assert that hazards help them understand their own limits as well as  
16 those of the equipment they use (Natalier, 2001). In the words of Lyng (1990), edgework  
17 activities involve “the right mix of skill and chance, a combination that maintains the illusion  
18 of controlling the seemingly uncontrollable” (p. 872). Indeed, the training and planning  
19 involved in extreme sports have been conceptualized as ways to build this sense of control,  
20 even though the course of the competition may be largely a matter of chance.

21 Thus, perceptions of control are central in individuals performing edgework activities:  
22 they need to maintain both physical and emotional control during their risky performances to  
23 “successfully negotiat[e] the edge” (Laurendeau, 2006, p. 585). To do so, they must risks  
24 evaluate accurately, through a process of continuous exploration of personal limits, which  
25 involves a great deal of physical, mental, and technical training (Laurendeau, 2006; Lyng,

1 2004). In other words, mastery of increasing risks is a major goal for edgework individuals  
2 (Lyng, 1990). Thus, risky performances generally involve considerable effort to maximize  
3 individual perceptions of control over the risky situation. In summary, the perception of  
4 control provides the mindset for successfully facing a challenge, for feeling able to conquer  
5 dangerous activities, which in turn leads to feelings of being blessed with a “survival instinct”  
6 (Laurendeau, 2006) that helps one successfully negotiate the edge (Lyng, 1990).  
7 Furthermore, perceptions of control not only help extreme sports practitioners face risks with  
8 a winning mindset but also are key to enjoying the extreme experience (Csikszentmihalyi,  
9 2002; Hardie-Bick & Bonner, 2016). Based on these considerations, we advance the  
10 following hypothesis:

11 **Hypothesis 2:** Perceived control will moderate the relationship between risk-taking  
12 attitude and self-enhancement, with higher levels of perceived control leading to  
13 higher self-enhancement.

#### 14 **2.4. From feelings of self-enhancement to re-patronage intention**

15 Sports consumption has relevant symbolic meanings for individuals’ self-image  
16 (Kang, Bagozzi, & Oh, 2011), and actively participating in a sporting event is a vehicle for  
17 self-expression, which individuals see as functional to approaching the ideal self (Gyimóthy  
18 & Mykletun, 2004). Although this evidence stems mostly from analyses set in the context of  
19 traditional (i.e., not extreme) activities, it appears reasonable to expect that also in extreme  
20 contexts feelings and desires for self-enhancement might drive the decision to re-patronage  
21 the events that helped consumers feel better. Indeed, it is thanks to the brand/event that  
22 extreme athletes compete, test their equipment, and find an environment where they may face  
23 the risks they actively seek, thus having the opportunity to feel better and more competent.

1           Many (if not all) of the events in extreme sporting work as brands (Kaplanidou &  
2 Vogt, 2007), with specific attributes, offers, fees, and a unique positioning (Ferreira, Hall, &  
3 Bennett, 2008). Scholars in marketing suggest that feelings of enhanced self-esteem and  
4 competence are among the identity-related motives for choosing a brand (Kressman et al.,  
5 2006; Proksch, Orth, & Cornwell, 2015), and that brands that satisfy customers' symbolic  
6 needs tend to enhance value perceptions and enjoy more commitment (Bairrada, Coelho, &  
7 Coelho, 2018; Steenkamp et al., 2003). Thus, it would appear reasonable to expect that events  
8 where athletes developed feeling of self-enhancement would enjoy higher re-patronage  
9 intention.

10           Furthermore, it is not by competing in the events and successfully facing hazardous  
11 situations that edgework individuals believe themselves skilled enough to handle possible  
12 risk that might present itself (Laurendeau, 2006). Rather, it is that in these contests they learn  
13 to better assess their own limits, as well as those of the equipment they use (Natalier, 2001).  
14 And such experiential knowledge is key because it is the basis for their pushing those limits  
15 even further (Natalier, 2001), as the very nature of individuals engaging in extreme activities  
16 involves pushing the limits of one's ability (Laurendeau, 2006). Thus, participating again in  
17 the event might be essential for edgework individuals after reaching self-enhancement, as the  
18 ability to more successfully face its challenges is developed through better knowledge of the  
19 context and more practice (Laurendeau, 2006; Natalier, 2001).

20           In summary, if consumers developed positive feelings of self-enhancement thanks to  
21 the event, we expect they would be more inclined to increase their commitment to that event,  
22 returning for that adrenaline rush, to compare the new with the old performance, to test the  
23 new equipment, and so on. On one hand, establishing strong bonds between events and  
24 consumers depends on the events' ability to fulfill consumer self-definitional needs, such as

1 self-enhancement. On the other hand, by participating again in an event, athletes can more  
2 efficiently face the challenges they pose. Accordingly, we advance the following hypothesis:

3 **Hypothesis 3:** Self-enhancement has a positive impact on re-patronage intention.

#### 4 **2.5. The role of event image**

5 The image of events in general and of sporting events specifically is usually  
6 conceptualized based on the theoretical framework proposed by Keller (1993), who suggested  
7 that brand images consist of attitudes, attributes, benefits, and costs with respect to an entity  
8 (Kaplanidou & Vogt, 2007). In this vein, Gwinner (1997) defined event image as “overall  
9 subjective perceptions of the [event] activity” (p. 148). Sporting event images are designed to  
10 be meaningful for the participants and refer, for instance, to physical activity components  
11 (Kaplanidou & Vogt, 2007) and/or to relevant subculture associations among participants  
12 (Green, 2001; Kaplanidou & Vogt, 2007). Perceptions of event image can significantly  
13 influence participants’ intention to take part in the event again in future, though usually  
14 indirectly (Kaplanidou & Vogt, 2007), and a positive image of an object usually strengthens  
15 consumers’ positive intentions toward that object (Graeff, 1997; Massara et al., 2014).

16 Extreme sporting events are consumed predominantly for the self-enhancement  
17 opportunities they provide via the ordeals contained in the events themselves (Brymer &  
18 Houge Mackenzie, 2016; Hardie-Bick & Bonner, 2016). Escalas and Bettman (2005) opined  
19 that consumers patronize brands/events whose images match the group they wish to belong  
20 to. In such instances, event image may play a critical role in increasing consumers’  
21 tendencies to re-patronage an event, which may allow for more self-enhancement. Han,  
22 Nunes, and Drèze (2010) highlighted that consumers use image cues to come closer to their  
23 desired self and to stand out from dissociative groups (in this case, non-extreme individuals;  
24 Lyng & Matthews, 2007). Therefore, in the case of extreme sporting events wherein strong

1 image-related cues are present, consumers' intention to re-patronage may increase  
2 significantly. Thus, we propose the following:

3 **Hypothesis 4:** Event image moderates the relationship between self-enhancement and  
4 re-patronage intentions, with a more positive event image leading to a stronger re-  
5 patronage intention.

## 6 **2.6. Risk-taking attitude and re-patronage intention**

7 Drawing from the psychological literature on extreme individuals, we offer a  
8 theoretical framework highlighting the need to consider the impact of risk-taking attitude on  
9 self-enhancement, and, in turn, the impact of feelings of self-enhancement on behavioral  
10 intentions. This is to say, we posit self-enhancement as mediator of the relationship between  
11 risk-taking attitude and re-patronage intention.

12 Researchers in psychology suggested that extreme individuals' positive attitude  
13 toward risks is linked to an active search for those risks (Lyng, 1990), with the goal of self-  
14 enhancement (Gupta & Bonanno, 2010), but edgework individuals do not display inherently  
15 different levels of loyalty or variety-seeking compared with non-edgework individuals  
16 (Brymer & Houge Mackenzie, 2016). We hence consider the effect of risk-taking on re-  
17 patronage intention as being indirect rather than direct. More formally, we advance that self-  
18 enhancement is a full mediator of the relationship between risk-taking attitude and re-  
19 patronage intention. In other words, risk-taking attitude translates into a managerially  
20 relevant behavior such as re-patronage only through self-enhancement. Accordingly, we  
21 propose the following:

22 **Hypothesis 5:** Risk-taking attitude has no direct effect on re-patronage intention but  
23 has an indirect effect through self-enhancement.



## 1 **2.7. Theoretical model**

2 Overall, our hypotheses link the psychological literature on risk-taking attitude,  
3 perceived control, and self-enhancement with the marketing literature. Edgework theory  
4 provides a psychology-based explanation of individuals' voluntary engagement in risky,  
5 threatening activities. We apply cognitive adaptation and edgework theory to extreme  
6 sporting events, using insights from these theories to better understand extreme consumers'  
7 re-patronage intention. From a different perspective, closer to classic models of consumer  
8 behavior, one might envision the theoretical underpinning in terms of the SOR model, the  
9 event being the stimulus, edgework theory and cognitive adaption theory pertaining to the  
10 organism, and intensions being the response.

11 Essentially, we hypothesize that extreme athletes with a higher risk-taking tendency  
12 develop stronger feelings of self-enhancement, particularly when they perceive that they  
13 control situational risks, and develop in turn a higher intention to re-patronage, especially  
14 when they have a positive image of the event in which they compete. In summary, we  
15 develop a multiple moderated mediation model, where self-enhancement mediates the  
16 relationship between risk-taking attitude and re-patronage intention, with perceived control  
17 moderating the relationship between risk-taking attitude and self-enhancement, and event  
18 image moderating the relationship between self-enhancement and re-patronage intention (Fig.  
19 1).

20 INSERT FIGURE 1 HERE

21  
22 As Fig. 1 shows, the left side of the model represents the gain for the individual:  
23 his/her psychological dimensions and drivers. The right side of the model represents the gain  
24 for the event: its competitive advantage and source of revenue. The proposed hinge between  
25 the two sides is individuals' feeling of self-enhancement.

## 1 **3. Method**

### 2 **3.1. Participants**

3           The data were collected through a paper-and-pencil questionnaire administered to  
4 consumer-athletes participating in competitions for extreme sports. Disciplines and events  
5 were chosen from a list of the world's most extreme sports competitions (DeRenzo, 2013)  
6 and from the academic literature (Atkinson, 2008; Kusz, 2003). Specifically, we considered  
7 four extreme disciplines (BMX; Florentine soccer [a particularly brutal gladiator-style form  
8 of soccer]; cliff diving; triathlon) and four events (BMX European cup; Florentine soccer  
9 tournament; Redbull cliff diving World Series; Ironman Italy championship).

10           A total sample of 500 responses was collected. Respondents' mean age was 31 years,  
11 and 78% were males, reflecting the demographics of a male-dominated world and reflecting  
12 well the population of the sampled sports according to reports from media coverage (Action  
13 Sports, 2009; Corriere Fiorentino, 2016; Crouse, 2015; Triathlon Business International,  
14 2014) and to the extant literature (Agilonu et al., 2017; Schreier, Oberhauser, & Prügl, 2007).  
15 It is worth noticing that interviewing participants from extreme events allows for sample  
16 generations that may have similar personality profiles, given that certain types of individuals  
17 tend to participate in these events. For instance, according to Plog's (1991) theory of  
18 allocentric and psychocentric personality, personality traits are critical factors in decision  
19 making about participation or travel to extreme destination or events.

20

### 21 **3.2. Measures**

22           Based on the aforementioned body of theories, the present research was delimited to  
23 patronage intention, self-enhancement, perceived control, risk-taking attitude and event  
24 image. It adopted measures for re-patronage intention from Kaplanidou and Gibson (2010);  
25 for self-enhancement from Shoham et al. (2000); for perceived control from Kang, Hahn,

1 Fortin, Hyun, and Eom (2006); for risk-taking attitude from Eysenck and Eysenck (1977);  
2 and for event image from Grohs and Reisinger (2014). Survey items were measured using 7-  
3 point Likert scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

4         Following Anderson and Gerbing's (1988) procedure to ensure the adequacy of the  
5 adopted measurements, we first ran a confirmatory factor analysis with AMOS 18 ( $\chi^2/df =$   
6 1.74; RMSEA = 0.039; NNFI, CFI = 0.98). Results provide support for the convergent  
7 validity of the measures, with all factor loadings exceeding the recommended .6 threshold  
8 (Bagozzi & Yi, 1988), and the composite reliability (CR) and the average variance extracted  
9 (AVE) exceeding than the recommended .7 and .5 thresholds, respectively (Fornell &  
10 Larcker, 1981). In the present study, the minimum CR is .86, and the minimum AVE is .60.  
11 Details are provided in Table 1. Next, we ran a test of discriminant validity based on the  
12 comparison of the AVE estimate for each construct with the squared correlation between any  
13 two constructs (Fornell & Larcker, 1981). Discriminant validity is confirmed as the lowest  
14 AVE (.60) that exceeds the highest squared correlation between any two variables (.50). The  
15 measurement model therefore meets all relevant psychometric properties. Details are  
16 provided in Table 2.

17

### 18 **3.3. Procedures**

19         A multiple moderated mediation analysis was run to test the theoretical model  
20 illustrated in Fig. 1 using the PROCESS macro for SPSS (Hayes, 2013). Based on the CFA  
21 results, the mean composite scores on the items for each construct were used in the multiple  
22 moderated mediation model (Hayes, 2013). Perceived control was entered as a moderator of  
23 the relationship between risk-taking attitude and self-enhancement, event image was entered  
24 as a moderator of the relationship between self-enhancement and the intention to re-  
25 patronage, and self-enhancement was entered as a mediator of the relationship between risk-

1 taking and the intention to re-patronage. Intention to re-patronage was the dependent variable  
2 (Fig. 2). The analysis assessed (1) the effects of risk-taking tendency on re-patronage  
3 intention (both directly and indirectly, through feelings of self-enhancement), (2) the effect of  
4 risk-taking tendency on self-enhancement (as moderated by perceived control), and (3) the  
5 effect of self-enhancement on re-patronage intention (as moderated by event image). The  
6 analysis combined mediation and moderation to estimate the conditional indirect effect of  
7 risk-taking on re-patronage intention through self-enhancement as moderated by perceived  
8 control and event image (Model 21 by Hayes, 2013). The statistical significance of the direct  
9 and indirect effects was evaluated by means of 10,000 bootstrap samples to create bias-  
10 corrected confidence intervals (CIs; 95%) with heteroscedasticity-consistent SEs.

11

## 12 **4. Results**

### 13 **4.1 Multiple moderated mediation**

14 The index of multiple moderated mediation was significant (Effect = .01, 95% CI  
15 [.00, .01]) as the 95% CI interval does not include zero (Hayes, 2013). This evidence supports  
16 that the conceptual model is robust. Specifically, risk-taking attitude led to higher feelings of  
17 self-enhancement (Effect = .24,  $t = 2.54$ ,  $p = .01$ ), providing support for Hypothesis 1.  
18 Furthermore, as advanced in Hypothesis 2, perceived control significantly moderated the  
19 effect of risk-taking attitude on self-enhancement (Effect = .07,  $t = 3.91$ ,  $p < .001$ ). This  
20 finding suggests that when perceived control increases, the effect of risk-taking is  
21 strengthened as differences in self-enhancement between individuals with higher and lower  
22 risk-taking are increased (effects at the values of moderator: Control<sub>high</sub> = .37, 95% CI [.27,  
23 .48]; Control<sub>low</sub> = .28, 95% CI [.20, .41]), as hypothesized in Hypothesis 2. In line with  
24 Hypothesis 3, feelings of self-enhancement were positively related to consumers' re-

1 patronage intention (Effect = .29,  $t = 1.95$ ,  $p = .05$ ). Additionally, as advanced in Hypothesis  
2 4, event image significantly moderated the effect of self-enhancement on re-patronage  
3 intention (Effect = .06,  $t = 2.05$ ,  $p = .04$ ). Specifically, the relationship between self-  
4 enhancement and re-patronage intention was stronger for individuals who had a better image  
5 of the event (effects at the values of moderator:  $Image_{high} = .40$ , 95% CI [.28, .50];  $Image_{low} =$   
6  $.30$ , 95% CI [.19, .39]), as hypothesized in Hypothesis 4. Consistently, given the pattern of  
7 moderations and mediation, the highest re-patronage intention was observed for individuals  
8 who both took risks under conditions of high perceived control and had a positive image of  
9 the event. No significant direct effect emerged, instead, for risk-taking attitude on re-  
10 patronage intention (Effect = .06,  $t = 1.07$ ,  $p = .29$ ). Overall, this evidence supports self-  
11 enhancement as a full mediator of the relationship between risk-taking and re-patronage  
12 intention, as advanced in Hypothesis 5.

13 Results suggest that individuals with higher risk-taking tendency developed a stronger  
14 feeling of self-enhancement, especially when they felt themselves to be in control of those  
15 risks, and thus also had a higher re-patronage intention, especially when they had a positive  
16 image of the event.

17 The results of the PROCESS macro are illustrated in Fig. 2 and summarized in Tables  
18 3 through 5.

19

20

INSERT FIGURE 2 HERE

21

22

23 Finally, to rule out that re-patronage intention was affected by geographical distance  
24 (Kaplanidou et al., 2012), a  $t$ -test was run separating between local and not local participants  
25 based on a median split on the travelled distance (Buning & Gibson, 2016). The test showed  
no difference in the level of re-patronage intention due to distance ( $M_{local} = 4.21$ ,  $SD = 1.52$

1 vs.  $M_{\text{not-local}} = 4.17$ ,  $SD = 1.43$ ;  $F(1,497) = .06$ ;  $p = .81$ ;  $\eta^2 = .001$ ), thus ruling out alternative  
2 explanations of the findings.

### 3 **4.2. Summary of the results**

4 Hypotheses 1 to 5 are supported. We investigated what drives individuals who  
5 undertake extreme sports to return to the extreme sporting events, addressing their attitude  
6 toward taking risks, their feelings of control and self-enhancement, and their image of the  
7 event. We showed that all these variables help drive re-patronage intention. Nonetheless,  
8 neither perceived control nor event image has a direct impact on consumers' re-patronage  
9 intention. Instead, it is self-enhancement that affects re-patronage: higher self-enhancement is  
10 triggered by higher perceived control over the risk undertaken and positively affects re-  
11 patronage intention, especially when consumers have a positive image of the event.

## 12 **5. Discussion**

13 We aimed at answering calls in the literature for investigating re-patronage intention  
14 for sporting events outside of traditional sports, that have remained unanswered in years  
15 (Wicker, Hallmann, & Zhang, 2012). Furthermore, and more importantly, we assessed the  
16 potential managerial relevance of psychological variables that appear to be unique  
17 characteristics of extreme individuals. To fill these gaps, we adopted the theoretical lenses of  
18 cognitive adaptation (Taylor, 1983) and edgework theory (Lyng, 1990) to identify potential  
19 key drivers of the behavior of extreme individuals, linking those constructs to managerially  
20 relevant consequences, such as re-patronage intention, in the context of active participation in  
21 extreme sporting events. The proposed model is unique in its use of theoretical constructs that  
22 are well established in the domain of psychology but novel in the domain of management. Its  
23 value stems from the fact that findings from previous researchers in management are

1 incongruent with and unsuited to investigating behavioral drivers and intentions in extreme  
2 sports, as they do not account for risk-taking and self-enhancement-seeking (Brymer &  
3 Houge Mackenzie, 2016), that are instead key features of extreme individuals according to  
4 literature in Psychology (Laurendeau, 2006). Thus, previous analyses in the domain of active  
5 participation in extreme sporting events are not only limited in number (Ko, Park, &  
6 Claussen, 2008), but also in scope (Brymer & Houge Mackenzie, 2016), as they largely  
7 ignore the key motives of edgework individuals, for whom limits-pushing risks are  
8 instrumental in the constant pursuit of self-enhancement (Lyng, 2004) under conditions of  
9 perceived control (Laurendeau, 2006). As a result, theoretical considerations developed in  
10 traditional contests do not fully reflect the psychology and behavioral drivers of edgework  
11 individuals. Thus, from a theoretical point of view, the we contribute by explicitly addressing  
12 those psychological drivers, showing that they work together in a single consistent model,  
13 and are significant predictors of consumers-athletes' intention to participate. By doing so, the  
14 model proposed in the present research overcomes the limitations of previous studies by  
15 emphasizing the need for a deeper understanding of the role of extreme individuals'  
16 psychology, and by identifying alternative key variables, such as risk-taking attitude, self-  
17 enhancement, and perceived control.

18         Results show that risk-taking attitude is key to generating positive feelings of self-  
19 enhancement in extreme consumers, and that when such consumers feel that they are in  
20 control of a situation the effect is even stronger. In turn, feelings of self-enhancement lead to  
21 higher intention to participate again in the event, especially when the event has a positive  
22 image in the mind of the consumers. Furthermore, the multiple moderations add to the picture  
23 that perceived control interacts with risk taking and self-enhancement, while event image  
24 interacts with self-enhancement and re-patronage intention. Specifically, when individuals  
25 feel more in control about the event, their feelings of self-enhancement are emphasized. In

1 turn, when the event image fits the participants' self-perceptions, then re-patronage is  
2 enhanced. The combined evidence from these moderations contributes to the knowledge of  
3 active event sport tourist behaviors in extreme events, highlighting the key role of the event  
4 experience in establishing repeat participation. Overall, this evidence underlines once more  
5 the need to account for the unique psychological specificities of extreme individuals to  
6 understand how they live the event experience.

7

## 8 **6. Managerial implications**

9 Extreme sports are a multi-billion-dollar market that rotates around events that work  
10 like brands: they have a specific positioning, the ability to attract thousands of athletes (worth  
11 in some cases many hundreds of millions) and are sponsored by leading brands such as Red  
12 Bull, Mercedes, Black & Decker, Gatorade, and many others. Decades of research and  
13 dozens of scholars agree that re-patronage intention is key to event success, and sporting  
14 events are no exception (Shonk & Chelladurai, 2008). The findings from the present research  
15 suggest that self-control is key for re-patronage, and feelings of perceived control over the  
16 risks being faced help achieving self-control. Accordingly, event managers should help  
17 participants develop those feelings. In this vein, previous researchers have shown that a way  
18 to increase perceived control over a psychological object is to provide information about that  
19 object (Wallstone, 2001). Thus, athletes could be informed of the average completion rate  
20 and time for the target event in previous years, the number of incidents, the average training  
21 schedule by the winners of the past edition, and so on. It is worth noticing that although  
22 managers possessed this information in all events sampled in the present research, they did  
23 not consider sharing it with the consumers.

24 Furthermore, the findings show that when consumers develop positive feelings of  
25 self-enhancement, those feelings translate to significantly higher intentions to re-patronage



1 the event. This is a positive message to both consumers and managers: making consumers  
2 feel better about themselves pays off not only for the consumers themselves but also for the  
3 event. Accordingly, event managers should consider providing messages of positive  
4 reinforcement to the consumer-athletes and help them establish favorable comparisons  
5 (Tesser, 2000). This could be achieved for instance by providing information about the  
6 success rates and times of the event in the present and past editions.

7         Furthermore, the findings from the present research show that a positive image of the  
8 event reinforces the translation of self-enhancement into potential revenues: the better the  
9 event image, the stronger the link between self-enhancement and re-patronage intention. In  
10 this vein, Kaplanidou (2010) explored runners' perceptions of sport event image and found  
11 that their own fulfillment was a critical factor. Therefore, the relationship between event  
12 image, self-enhancement and re-patronage intention appears to be a more general concept  
13 that applies to sporting events where there is a challenge involved. Thus, event image appears  
14 a key element for the success of the event and, contrary to risk-taking, self-enhancement and  
15 perceived control, it does not stem from the psychology of edgework individuals but rather  
16 from the positioning and communication strategy of the organizers. Accordingly, managers  
17 should continuously monitor event image, ensuring consistency with participants'  
18 expectations and leveraging the event characteristics, heritage, and distinctive features.

19         Finally, practitioners should be aware that risk-taking attitude per se is not enough to  
20 turn into re-patronage intention: it is only when consumers feel self-enhancement that the  
21 positive relationship takes place. Thus, targeting risk-prone individuals is a necessary yet not  
22 sufficient condition for success. Rather, success requires interacting with and understanding  
23 the participants, to help them achieving feelings of self-enhancement, as it is from  
24 consumers' positive feelings of having become better, stronger, and tougher that the positive  
25 outcomes for the brand/event come from.

## 1 **7. Limitations and future research**

2           The outcome variable in the current study was intention to re-patronage the event.  
3       Given that the economic impact of sporting events on host destinations is well established  
4       (Solberg & Preuss, 2007), future researchers should consider different outcome variables  
5       addressing destination-related consumer behavior and intentions. For instance, scholars could  
6       include intentions also toward the location hosting the event.

7           A limitation of the present research stems from the lack of a common definition in the  
8       literature of what extreme sports are precisely. Brymer and Houge-McKenzie (2016) note  
9       how ‘free sports’, ‘adventure sports’, ‘lifestyle sports’, ‘alternative sports’ and ‘action sports’  
10      are often used interchangeably with extreme sports. For some people, extreme sport are  
11      nontraditional youth sports, such as skateboarding; for others, they are adventure experiences  
12      such as climbing and kayaking; and yet some only see extreme sports as those activities  
13      where accidents are most likely to be deadly, like parachuting. Thus, scholars should be  
14      cautious about generalizing these findings to other sports, as the lived experience could  
15      differ.

16          Another limitation is that perceived control was measured with regard to the event. In  
17      future studies, researchers could consider addressing perceived control more in line with the  
18      theory of planned behavior (Ajzen, 1991), as the perception of the ability in oneself to  
19      perform a given behavior.

20          Finally, Kaplanidou and Gibson (2010) use the term active event sport tourists to  
21      describe ‘participatory sports-related travel associated with event participation’ (p. 164). In  
22      line with this definition, the surveyed individuals were traveling, nationally or internationally,  
23      to participate in the sampled sport events. In this vein, scholars in travel and environmental  
24      psychology have shown that behavioral intention (Manzo & Perkins, 2006; Kaplanidou et al.,  
25      2012) and motivational cues (Kaplanidou & Vogt, 2010) can be affected by geographical

1 distance. Accordingly, they usually delineate between local and non-local places (Brown,  
2 Perkins, & Brown, 2003) and travelers (Buning & Gibson, 2016). Instead, we focused on  
3 how event patronage is affected by extreme athletes' psychological drivers, as identified  
4 based on cognitive adaptation theory and edgework theory. Thus, we welcome future studies  
5 that broaden the scope of our conceptual model to include tourism- and distance-related cues  
6 that extreme athletes share with traditional sport tourists (Shoham, Rose, & Kahle, 2000), in  
7 addition to the edgework-related variables that are unique to the former (Lyng, 2008).

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1 **Appendix**

2

3 **Table 1**

4 Construct measures and results of confirmatory factor analysis.

Measures	Mean	SD	Factor loading	CR	AVE
Re-patronage intention:				.95	.85
I am more likely to attend this event in the future.	4.32	1.57	.90		
The likelihood that I will attend this event in the future is high.	4.12	1.51	.92		
I will attend this event in the future.	4.21	1.53	.95		
Self-enhancement:				.94	.79
I am a better person than I was when I began this event.	4.58	1.31	.85		
I have not changed much since I began this event (reversed).	4.46	1.42	.94		
This event has changed my perspective.	4.62	1.27	.87		
Being able to measure my improvement helps me become better at this event/activity.	4.67	1.21	.89		
Event image:				.88	.60
This event is cool.	4.65	1.58	.71		
This event is innovative.	4.68	1.41	.72		
This event is sportive.	4.92	1.57	.87		
This event is up to date.	4.78	1.46	.76		
This event is active.	4.81	1.50	.81		
Risk-taking tendency:				.90	.66
I often long for excitement.	4.41	1.50	.82		
I quite enjoy taking risks.	4.50	1.57	.84		
Life with no danger would be too dull for me.	4.46	1.59	.80		
I often long for excitement.	4.46	1.54	.87		
When the odds are against me, I still usually think it worth taking a chance.	4.37	1.59	.71		
Perceived control:				.86	.60
Whenever I want to perform this sport in public events, I only need to search for them.	5.19	1.20	.72		



It is easy to perform at this event.	5.13	1.22	.78
As far as this event is organized, it is easy for me to perform in it.	5.24	1.31	.83
There are few obstacles for me to perform in this event.	5.32	1.28	.76

1 *Note.* CR = composite reliability; AVE = average variance extracted; SD = standard deviation

2

3

4 **Table 2**

5 Means, standard deviations, variance inflation factors, and squared correlations.

Variable	Mean	SD	VIF	1	2	3	4	5
1 Risk-taking	4.44	1.52	2.49	1	.04	.50	.01	.20
2 Perceived control	5.22	1.18	1.24	.04	1	.14	.04	.06
3 Self-enhancement	4.58	1.24	2.79	.50	.14	1	.01	.30
4 Event image	4.77	1.35	1.05	.01	.04	.01	1	.10
5 Re-patronage intention	4.20	1.47	-	.20	.06	.30	.10	1

6 *Note.* SD = standard deviation. VIF = variance inflation factor. Items were measured on a 7-point scale.

7

8 **Table 3**

9 Multiple moderated-moderated mediation analysis.

Effect	Coeff	SE	t	p	LLCI	ULCI
Risk-taking attitude on self-enhancement	.24	.09	2.54	.01	.05	.42
Perceived control on self-enhancement	-.04	.08	-.50	.62	-.19	.11
Moderation of perceived control	.07	.02	3.91	.00	.03	.10
Self-enhancement on re-patronage intention	.29	.14	1.95	.05	.00	.59
Event image on re-patronage intention	-.01	.13	.10	.92	-.25	.28
Moderation of event image	.06	.03	2.05	.04	.00	.11
Risk-taking attitude on re-patronage intention	.06	.05	1.07	.29	-.05	.16
Direct effect	.06	.05	1.07	.29	-.05	.16

10 *Note.* Coeff = coefficient; SE = standard error; LLCI = lower limit confidence interval; ULCI = upper-limit  
 11 confidence interval.

1 **Table 4**

2 Moderator analysis: Conditional effect of risk-taking attitude on self-enhancement at values  
 3 of the moderator (perceived control).

Perceived control	Effect	SE	LLCI	ULCI
Low	.28	.05	.20	.41
Medium	.33	.05	.24	.43
High	.37	.06	.27	.48

4 *Note.* SE = standard error; LLCI = lower-limit confidence interval; ULCI = upper-  
 5 limit confidence interval.

6 **Table 5**

7 Moderator analysis: Conditional effect of self-enhancement on re-patronage intention at  
 8 values of the moderator (event image).

Event image	Effect	SE	LLCI	ULCI
Low	.30	.05	.19	.39
Medium	.33	.05	.24	.42
High	.40	.06	.28	.50

9 *Note.* SE = standard error; LLCI = lower-limit confidence  
 10 interval; ULCI = upper-limit confidence interval.

11

1 **Figures recalled in the text**

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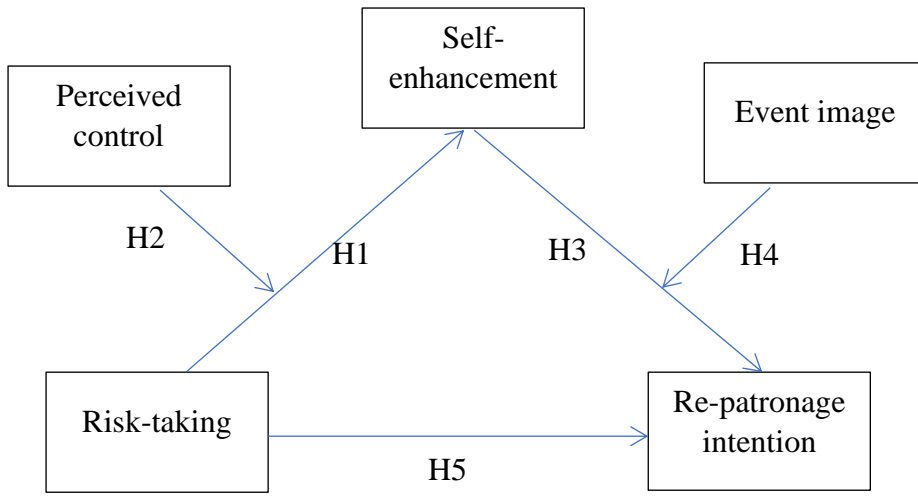
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11 **Fig. 1.** The conceptual model.

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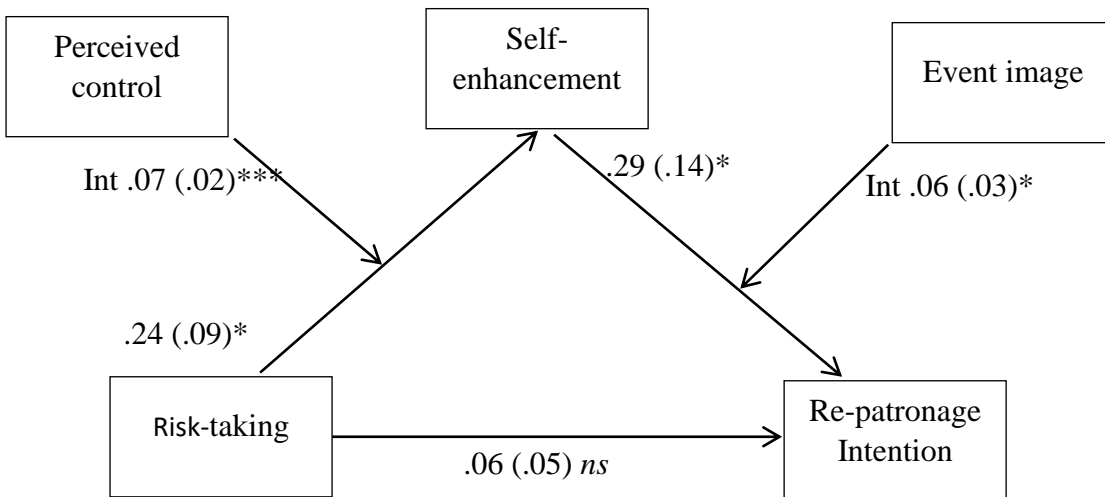
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Int = Interaction; \*  $p < .05$ ; \*\*\*  $p < .001$

22 **Fig. 2.** The multiple moderated mediation analysis (model 21 by Hayes, 2013).