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To cite this version:
Eric Fruchart, Patricia Rulence-Pâques, Etienne Mullet. Watching high-risk sports on television: the reversal theory’s concept of protective frame. Sport in Society, 2018, 21 (12), pp.2032 - 2047. 10.1080/17430437.2018.1487404 . hal-03425973

HAL Id: hal-03425973
https://univ-perp.hal.science/hal-03425973
Submitted on 6 Oct 2022

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Abstract

The study explored the psychological links that may exist between the feeling of being threatened and the perceived risk of sports situations, the interest for television sports programs and the interest for conversations about these television sports reports. One hundred and ninety nine participants were presented with a series of questionnaires to assess: a) the degree of threat, the perceived risk as well as the amount of personal experience associated with certain sports situations, b) the degree of interest and the viewing habits associated with the same sports situations, c) the degree of interest shown for participating in conversations about these sports programs. The more the sports were considered threatening and perceived as risky, the more the participants were interested in watching these sports on television and to talk about these television programs. The concept of protective frame explained this finding.

Keywords: media interest; sport; risk perception; protective frame; reversal theory
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Watching High-risk Sports on Television: The Reversal Theory’s Concept of Protective Frame

Sport and media are two distinct entities that interact. Sport exists through media and media need sport (Coakley, 2008). In media, one of the real consumers in sport is the spectator, not the one who goes to a sports venue to support their favourite team but the one who watches sport on the television screen (Potgieter, 2003). For actors in sports broadcasting industry, it is important to understand the reasons for the entertainment or the interest shown for televised sports because demand becomes more and more important and they must propose programs that are more and more specialized (Coetzee, Van Wyk, & Steyn, 2006). Therefore, one part of research on the audience watching sport on television has furthered investigations into this issue (e.g., Kang, Lee, & Lee, 2010): Why do spectators watch sport on television?

To answer this question, researchers in psychology work on the level of arousal of individuals. In this way, some studies implemented the Zukerman’s (1994) sensation seeking theory. For example, Coetzee et al. (2006) studied the relationship between sensation seeking and preference in viewing televised sport. In considering three types of sport (violent fighting sport, aggressive combative sport, and stylistic sport), they showed there was a positive relationship between high sensation seeking and viewing violent combative sport. They indicated that low sensation seeking viewers are interested by more stylistic sport on television.

Two potential limitations of Zukerman’s (1994) theory can be identified. Firstly, sport could be considered as a homogenous form of television program that create interest principally by the components of violence and aggression (e.g., McDaniel, 2003). Yet, other practices may influence the arousal of viewers such as high-risk sports (e.g., skydiving, climbing, jumping, rally driving…) where arousal seeking is associated with risk taking.
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during these activities. McDaniel (2003) underlined the necessity to include a large variety of
sports programming content with potential arousal to understand why people watch sport on
television. Secondly, this approach studies sensation seeking as a common stable trait. An
opposed perspective is to consider the changeability and inconsistency of behaviour and
experience in relation to sensation seeking. In order to follow this last perspective, the
reversal theory (Apter, 2001) can be applied.

Reversal theory and Protective Frame

Reversal theory is a theory based on motivation, personality, and emotion (Apter, 2001, 2007). It is a theoretical framework that uses a structural phenomenological approach of
everyday experience. The subjective experience of individuals and how this experience is
structured provide information in which individuals’ motives are organised. So, one type of
question ensuing from the reversal theory is: what are the motives for engaging in a specific
type of activity? According to this theory, human motives are conceived from
metamotivational states that involve different ways of interpreting motivational variables.
Metamotivational states are mental states that concern how people experience their motives
(Kerr, 2005). They govern the way an individual interprets their motives at a certain time. The
dynamic approach refers to individuals who shift between these metamotivational states in the
course of everyday life and under a variety of conditions: contingency, frustration, and
satiation.

The reversal theory postulates that there are eight metamotivational states (Apter, 2001). They represent values that are grouped in four pairs of opposite states, and may rapidly
change over time. The first two pairs of metamotivational states form the somatic states: the
telic and paratelic states, and the conformist and negativistic states. They refer to the way in
which individuals experience their own bodily arousal. The two other pairs of
metamotivational states form the transactional states: the mastery and sympathy states, and
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the autic and alloic states. They refer to interactions with other individuals or objects. Although all eight metamotivational states are important, the telic and paratelic states are essential for explaining the participants’ experience and motivation in high-risk sports (Kerr, 1991). The telic state is characterized by the following values: arousal-avoiding, goal-orientated, serious-minded, future-orientated, planning ahead, preferring important activities, attempting to complete activity. The paratelic state is characterized by the following values: arousal-seeking, sensation-orientated, playful, present-orientated, spontaneous, preferring unimportant activities, attempting to prolong an activity. This pair of metamotivational states is directly related to the concept of the protective frame (e.g., Kerr, 2005).

The protective frame is subjectively determined, cognitively based and concerns the different ways in which the contents of experience are interpreted by an individual at a particular time. It provides a feeling of protection from risk or danger and forms a kind of “psychological bubble” around an activity (Apter, 2007). The activation of a protective frame leads the individual into a paratelic state and the individual becomes excited by the heightened arousal and challenges associated with risk. The lack of a protective frame leads people into a telic state and they will experience risk and danger with anxiety, a feeling of threat or fear. Because of the protective frame, threatening situations can be experienced as unpleasant in the telic state or as pleasant in the paratelic state. The protective frame is affected by the individual’s experience of risky and dangerous situations. One’s own personal perception of risk or fear depends on the individual’s subjective experience and can show how the protective frame operates (Kerr, 1997).

Apter (2001) describes three protective frames: (1) the safety zone frame brings a feeling of safety through the perception that in fact there is no source of threat or risk; (2) The confidence frame releases a feeling of safety through confidence in one’s own skills and those of others and the dependability of equipment; (3) the detachment frame that provides a
feeling of safety through the fact that the individual is merely an observer of the threat or risky situation and is not directly involved as in the case of watching television programs (Apter, 1992). The protective frame was studied in sport (e.g., Kerr, 1991, 2007) and in media (e.g., Portell & Mullet, 2014).

In sport, qualitative research methods have been used to verify the existence of the protective frame in high-risk sports (e.g., Kerr, 2007; Mackenzie & Kerr, 2012, 2014). They illustrated this concept by studying how a female skydiver’s experience suddenly changed her feelings (excitement to anxiety) or metamotivational states (paratelic to telic) following the death of her friend in a skydiving accident. By applying an autoethnographical approach in hiking adventure tourism, Mackenzie and Kerr (2012) underlined the necessity for creating a protective frame to make the experience enjoyable by identifying factors that influenced this frame (e.g., environmental conditions). Mackenzie and Kerr (2014) studied the experience of motivation in an expert male skydiver. They concluded that his protective frame was based on telic-mastery state combination. The main limitation in these qualitative studies is that their investigations are based on a very small sample of athletes which severely restricts the generalization of their findings. To overcome this limitation, it would be necessary to confirm the existence of the protective frame in high-risk sports by using a quantitative method.

In the media, a quantitative method was used to explore the effect of multiple protective frames in relation to motivation to watch television programs so as to understand why individuals enjoy watching natural disasters and human violence on television (Portell & Mullet, 2014). In this study, the distance created by the media allows people to enjoy arousing material within one or two protective frames, even if the subject matter is unpleasant programs (Hill, 2000). Portell and Mullet (2014) investigated the psychological links between individuals’ choice of television programs, conversation topics centered on the content of these programs, and level of the feeling of threat perceived by the individual in relation to
these programs. One hundred and fifty five participants answered a set of 6 questionnaires, each composed of a list of 15 situations that looked at: the threat (no protective frame), the interest shown from watching programs on television (one protective frame), the interest shown from talking about programs on television (two protective frames), personal experiences, television habits, and risk perception. They found that the threatening character of actual situations was positively correlated with the interesting character of watching the same situations on television and talking about the corresponding television programs. Furthermore, it correlated more with watching rather than talking about the TV programs. The participants watched more frequently television programs presenting threatening situations than television programs presenting non-threatening situations. For a majority of individuals, watching exciting television programs and talking about risky situations are more interesting because a protective frame is operating (negative consequences have been taken away). On the other hand, a minority of individuals were less interested in watching exciting television programs and in discussing topics centered on risky situations because they were stressful or possibly psychologically harmful.

However, in the questionnaires of Portell and Mullet’s (2014) study, only three of fifteen situations referred to sport programs: skating, biking, and skiing. Therefore it is necessary to extend investigations into other high-risk sports to confirm these results.

Present study

The present study aimed at replicating Portell & Mullet’s research (2014) in sports media and at exploring the psychological links that may exist between the feeling of being threatened and the risk perception in sports situations, the interest for television sports programs and for conversations about the television sports reports.

The stronger the protective frame, the likelier the individual would be able to cope with fear where that fear is being paradoxically turned into pleasure. Television would
therefore allow individuals to feel excitement even if dangerous and terrible situations are shown. It would also be possible to increase the robustness of the protective frame by considering conversations. Some of the threats or risks perceived through the television sports programs would be exciting due to the presence of a protective frame and people will enjoy discussing dangerous television situations without feeling stressed. The more protective the frame is, the more likely the individuals would convert their fear into pleasure, especially if they are not involved in the situation. Television would create a protective frame. And the conversation would be a double protective frame. Speaking about high-risk sports television reports would limit and trivialize the danger so that the individuals could enjoy this conversation.

**Hypothesis**

The below set of hypotheses was based on the framework of reversal theory and on the concept of the protective frame (e.g., Apter, 1992; Kerr, 1997) and was based on Portell and Mullet’s (2014) findings: The first hypothesis (Hypothesis 1) was that both the interest for television sports programs (one protective frame) and, the interest for conversations (two protective frames) would correlate with the degree of threat and risk.

The second hypothesis (Hypothesis 2) was that the threatening character of real sports situations would be more associated with the interest for conversation topics about the sports television program than with the interesting nature of the television program itself.

The third hypothesis (Hypothesis 3) was that the perception of risk would be more associated with the threatening character of the real sports situations (no protective frame) than with the interest for watching (one protective frame) and for hearing conversations (two protective frames) about TV sports programs.

The fourth hypothesis (Hypothesis 4) was that the threatening character of real sports situations correlates with the attractiveness of watching and talking about the corresponding
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For a majority of participants, it would be the opposite.

The fifth hypothesis (Hypothesis 5) was that the participants would more frequently watch sports television programs presenting threatening situations than programs showing non-threatening situations.

Method

Participants

The participants were 199 adult students ($M_{age} = 24.39; SD = 1.28$). They were unpaid volunteers living in France. There were 99 male participants ($M_{age} = 24.28; SD = 1.00$) and 100 female participants ($M_{age} = 24.49; SD = 1.60$). Once an agreement was reached with the president of the University, the study was presented to all adult students. For those who accepted to participate, an appointment was arranged.

Material

As in Portell and Mullet (2014), there were 6 questionnaires, each of them presenting sports situations where the risk involved varied. The choice of sports followed the distinction between “safe” and “high-risk” sports so that one could study the motives of practices from the reversal theory (e.g., Kerr & Svebak, 1989).

1. The No Protective Frame questionnaire. It presents sports situations in which the participants are placed. It is composed of a list of 15 more or less dangerous situations. These situations ranged from rambling to skydiving. They are listed in Appendix 1. Participants had to rate them, where “15” is the most threatening situation and “1” is the least threatening situation.

2. The One Protective Frame questionnaire. It is composed of 15 more or less dangerous television programs similar to the dangerous situations of the first questionnaire. They ranged from rambling to skydiving. They are listed in Appendix 2. Here, the sports
situations do not involve the participants in a direct way. There is a protective barrier. The
participants consider sports television programs about which they have to indicate their
degree of interest. They have to order them from the most interesting situation (= 15) to the
least interesting situation (= 1). These programs are similar to the situations of the first
questionnaire, so that a comparison can be made between the degree of threat posed by real
situations with the degree of interest for television sports programs.

3. The Two Protective Frame questionnaire. It presents 15 conversations about the
same television programs as the second questionnaire. There is here a double barrier of
protection because the television programs are discussed (see Appendix 2). The situation
takes place in a train, and an individual hears a conversation about a television program.
Participants have to rate them from the most interesting situation (= 15) to the least interesting
situation (= 1). In fact, the conversations are similar to the situations in real sports situations
(questionnaire 1) and in the television sports programs (questionnaire 2) so that a comparison
between the degree of threat posed by real situations and the degree of interest to participate
in the conversation can be made.

4. The Personal Experience questionnaire. It presents the personal experience of the
real life sports situations. It is composed of the 15 more or less dangerous situations of the
first questionnaire, plus 6 additional situations used as distractors. An 11-point response scale
followed each situation from “Never been in this kind of situation” to “Often been in this kind
of situation”.

5. The Television Habits questionnaire. It estimates how frequent the sports program is
watched. It is composed of the 21 situations of the fourth questionnaire with an 11-point scale
from “I have never watched programs about this kind of situation” to “I have frequently
watched programs about this kind of situation”.

6. The Risk Perception questionnaire. It estimates the degree of risk in sports
situations. It is composed of the same 21 situations with an 11-point scale ranging from “No risk” to “Extremely risky”.

Procedure

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional committee. Having made sure the participants understood the instructions and that they had sufficient knowledge about the different sports included in the questionnaires, they were each given a questionnaire to fill in on their own. The procedure was anonymous. The administration of the questionnaires was counterbalanced. Two groups of 66 subjects and one of 67 participants were constituted randomly. The first group filled in questionnaires 1, 2, 3, 4, 5 and 6 in this order. The second group filled them in the following order: questionnaire 2, then 3, then 1, then 5, then 6 and then 4. Questionnaires 3, 1, 2, 6, 4 and 5 were proposed in this order to the third group. In the No Protective Frame questionnaire concerning the real sports situations, the participants have to order 15 situations from 15 to 1 by attributing the rank of 15 to the sports situation considered the most threatening then by attributing the rank of 14 to the situation considered the most threatening among the 14 remaining and so on until there was only one situation remaining that was ranked 1. The One Protective Frame questionnaire proposed 15 television sports programs which corresponded to 15 sports real situations of the previous questionnaire. The subjects have to order these programs from 15 to 1 by attributing the rank of 15 to the program considered the most interesting. In the same way, the rank of 14 will be attributed to the program considered the most interesting among the 14 remaining situations and so on until there was only one situation remaining that was the rank 1. The Two Protective Frames questionnaire with double protective barrier invited the participants to imagine that they are traveling by train and that a conversation about a television sports report ensued between two travellers in the same compartment. They were presented with the same 15 mentioned sports
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situations of the previous questionnaire. They have to rank them from 15 to 1 in terms of the willingness to participate in conversations. So, for the first three questionnaires, every participant produced a personal ranking of the 15 proposed items. The Personal Experience questionnaire concerned the experience of the described situations. The participants were asked to indicate on a scale to what extent they had personally previously been exposed to each of 21 described sports situations (15 + 6). The questionnaire concerned the Television Habits. The participants were asked to indicate the extent to which they have watched these types of television sports reports over the previous 24 months. In the Risk Perception questionnaire, each participant has to indicate on a response scale, the degree of risk associated with each of 21 described sports situations. So, for these three last questionnaires, every participant used response scales.

Results

Results from the three groups of participants were pooled together, after it was found that the average score of each group was not significantly different. The average scores and standard deviations found overall for all items are presented in Table 1.

For threatening situations, the highest mean ranked items (the most threatening) were skijumping, skydiving, and bungee jumping. Conversely, the lowest mean ranked items (the least threatening) were rambling, swimming, and cycling. Standard deviations ranged from 2.41 to 3.22, with a median at 2.87. There was a reasonable inter-subjects agreement about what constitutes a threatening situation.

For the interesting character of the television sports programs (representing a single protective frame), the highest mean ranked items (the most interesting) were the programs on surfing, rafting, and bobsleigh. Conversely, the lowest mean ranked items (the least interesting) were the programs on rambling, running, and cycling. Standard deviations ranged from 3.08 to 4.98, with a median at 3.40. There was more inter-subjects disagreement about
what constitutes an interesting program than about what constitutes a threatening situation.

For the interesting character of conversation topics, the highest mean ranked items (the most interesting) were the programs on surfing, rafting, and bungee jumping. Conversely, the lowest mean ranked items (the least interesting) were the programs on rambling, running, and cycling. Standard deviations ranged from 3.16 to 5.29, with a median at 3.74. There was more inter-subjects disagreement about what constitutes an interesting conversation topic than about what constitutes an interesting program or about what constitutes a threatening situation.

Three Wilcoxon tests were conducted on the three series of SD from each condition (Threatening, One Protective Frame, and Two Protective Frames). The difference between Threatening condition and One Protective Frame condition was significant, $z = -3.41$, $p < .001$. The difference between Threatening condition and Two Protective Frames condition was significant, $z = -3.41$, $p < .001$. The difference between One Protective Frame condition and Two Protective Frames condition was significant, $z = -2.76$, $p = .006$.

In the personal experience questionnaire, the sports that had the highest mean ratings were swimming, rambling, and cycling. The lowest mean ranked sports were skydiving, paragliding, and boxing. As for television habits questionnaire, the sports that had the highest mean ratings were football, skijumping, and surfing. The lowest mean ranked sports were skydiving, paragliding, and boxing. As for the perceived risk questionnaire, the sports that had the highest mean ratings were skijumping, rafting, and paragliding. The least mean ranked sports were rambling, swimming, and cycling.

Table 1 shows the 15 situations ordered according to the participants’ mean response in each condition. Spearman correlation coefficients, computed on the group level, that is, from the values in each column of Table 1, are shown in Table 2. The correlation was .64, $p < .01$, between mean ranks in the Threat condition (i.e., Zero Protective Frame condition) and
mean ranks in the One Protective Frame condition. The more a situation was estimated threatening when there was no protection from its actual consequences, the more it tended to be adjudged to be interesting when one was only indirectly exposed to it. The correlation was .65, p < .01, between mean ranks in Threat condition (i.e., Zero Protective Frame condition) and mean ranks in Two Protective Frames condition. The more a situation was considered to be threatening when there is no protection, the more it tended to be considered to be an inviting conversation topic.

As regards the Personal Experience condition, it was correlated with the threatening condition, the One Protective Frame condition, the Two Protective Frames Condition, and the Perceived Risk condition. There was relationship between judged personal experience and these measurements. With regard to the television habits condition, it was correlated with the interesting character of the programs and the inviting character of conversation topic. As regards the Risk Experience condition, it was correlated with the Threatening condition, the One Protective Frame, the two Protective Frames condition, and the Personal Experience condition.

Spearman correlation coefficients were computed on an individual level. Figure 1 presented the distribution of the individual correlations between ranks in the Zero Protective Frame condition and ranks in the One Protective Frame condition. The histogram showed the asymmetry of the distribution (Skewness = -67, Kurtosis = -18) with a majority of participants (48%) with positive correlations, peaking at more than .40, and a minority of participants (8%) with negative correlations, peaking at less than -.40. The effect of gender was not significant.

Figure 2 showed the distribution of the individual correlations between ranks in the Zero Protective Frame condition and ranks in the two Protective Frames condition. The histogram showed the asymmetry of the distribution (Skewness = -38, Kurtosis = -84) with a
majority of participants (42%) with positive correlations, peaking at more than .40, and a
minority of participants (11%) with negative correlations, peaking at less than -.40. The effect
of gender was not significant. The difference between these two distributions was significant,
z = -2.80, p = .005. The correlation between both series of values was also significant: .81, p
= .01

Discussion

This study examined the relationship between the feeling of being threatened in actual
sports, the interest for television sports programs and for conversation topics centered on
these programs, the personal experience, the sports television habits and the perceived risk of
certain situations. Within the framework of reversal theory (Apter, 2001), it aimed to replicate
Portell and Mullet’s (2014) study regarding sports media in order to explain why people enjoy
watching high risk sport on television.

The first hypothesis was that both the interest for television programs (one protective
frame) and, the interest for conversation (two protective frames) would correlate with the
degree of threat and risk. This was observed. The more the sports were considered threatening
and perceived as risky, the more the participants were interested in watching these sports on
television and talking about them. They judged these sports situations to be the most
interesting once the negative consequences for them had been removed. This result confirmed
Portell and Mullet’s (2014) findings showing that people are more interested in watching
frightening television programs and in choosing conversation topics about high risk situations.

The second hypothesis was that the threatening character of real sports situations
would be more associated with the interest for conversation topics about the sports television
program than with the interesting nature of the television program itself. This was observed.
Although the difference between both correlations was not very important (0.64 for watching
vs 0.65 for conversation), this result was consistent with Portell and Mullet’s (2014) findings.
The third hypothesis was that the perception of risk would be more associated with the threatening character of the real sports situations (no protective frame) than with the interest for watching (one protective frame) and for hearing conversations (two protective frames) about TV sports programs. This expectation was confirmed. The more the frame was protective, the less risky the sports situations were perceived. This result was consistent with the conclusions of certain qualitative studies on the protective frame (e.g., Mackenzie & Kerr, 2012, 2014). Using one or several protective frames enables one to adopt the environmental conditions, so as to transform a real high risk sports situation into less risky one.

The fourth hypothesis was that the threatening character of real sports situations correlates with the attractiveness of watching and talking about the corresponding sports program for a majority of participants. For a minority of people, it would be the opposite. This hypothesis supported and confirmed Portell and Mullet’s (2014) results. For a majority of participants, the more actual sports situations were considered to be threatening (situations without protective frame and with direct exposure to them), the more watching these sports on television and conversing about these sports programs (situations with one or two protective frames and with indirect exposure to them) were judged to be interesting. On the other hand, a minority of participants reported that the more sports situations were threatening, the less these sports were watched on television and the less talking about these sports programs were interesting. All the participants did not use the protective frame in the same manner. Although watching high-risk sports situations is a pleasant moment for a majority of participants, it remains displeasing for a minority of participants.

The fifth hypothesis was that the participants would more frequently watch sports television programs presenting threatening situations than programs showing non-threatening situations. This hypothesis was not observed. There was no correlation between the threatening nature of sports situations and individual’s’ viewing habits. Although they had an
interest for watching sports of a threatening or high-risk nature (see hypothesis 1’s findings),
they did not consider that they watched these sports frequently on television. This finding
may be explained by the very extensive broadcasting of some sports, like football matches on
French channels. It is as if football is being promoted as a form of entertainment on TV.
Therefore, it is very popular. Other sports like skijumping, bobsleigh and skydiving are much
less visible on TV because these sports are not played all the year round because of the
weather conditions reasons or quite simply through the choices made by the broadcasters.

The set of findings confirmed that the protective frame explains the enjoyment of
individuals to watch and talk about high-risk sports situations. This investigation
demonstrated that the concept of the protective frame is useful for understanding the
importance of risk perception when using the media. More generally, the concept of the
protective frame (Apter, 1992) is useful for understanding people’s preferences in “actual
daily life” sports situations, in “reported” ones on television (one protective frame) or in
“evoked” ones in conversations (two protective frames). Because of a protective frame like
television, real threatening sports situations may be considered the most “enjoyed” when
reported in media. People like to watch high-risk sports situations on the television screen
probably because their negative consequences have been removed.

However, we can identify limitations in our study. Firstly, our study was based on
only one kind of protective frame, the detachment frame. The study’s findings showed the
effect of personal experience on the perceptions of risk and threat. This personal experience is
considered as an antecedent of the confidence frame (Males, Kerr, & Hudson, 2015) but this
confidence frame was not directly explored in our investigation. It would be interesting to
make further studies to link personal experiences, detachment, confidence and safety zone
frames (Apter, 2001). Secondly, it would be judicious to measure the level of emotions in
each condition (no protective frame, one protective frame, and two protective frames). This
approach might give information on parapathic emotion characterised by a high arousal (that is usually an unpleasant experience) in the telic state but can be a pleasant experience (Apter, 2001). Thirdly, in this study, we used ranked data. In replacing this level of measurement by interval level data, we could use multivariate analyses to test the contribution of one and two protective frames on interest. Fourthly, we could have been more interested in the adolescent population. The amount of TV adolescents watch is likely to bias their views of high-risk behaviour (Russel & Buhrau, 2015). Further investigations should be carried out on adolescents so as to understand why they prefer to watch certain high-risk sports programs.

Implications

Our study may present implications for sports actors or media actors: broadcasters, advertisers and sports educators. In promoting consumption of televised sports, broadcasters may use research from the reversal theory and the concept of the protective frame in media to identify individuals’ preferences in sports events. On the one hand, this may allow better targeting of their sports programs in order to make a majority of spectators watch their television channel. Here, it might be useful to program as prime time events of a high-risk or threatening nature, because the protective frame produces an interest for these sports programs. On the other hand, broadcasters may take into consideration the minority of people who are not interested in high-risk sports, because the sports do not create a protective frame.

Advertisers may find a benefit in programming these high-risk sports during adverts to incite spectators not to channel-hop and so, facilitate the promotion of a chocolate bar or other foodstuffs. Since they were interested by the high-risk sport, they would stay on the same channel and could be stimulated to buy this product.

Sports educators may use television in education to target high-risk sports. In situations of a high-risk nature, people may be frightened by the real situation and may refuse to do this sport. For example, an individual may give up skydiving because he is afraid.
preliminary phase in which the instructor shows him a series of jumps on television could help individuals to increase their knowledge of this sport and to become accustomed to skydiving.

As regards “scary” sports programs on television, people tend to enjoy them but it appears that programs glorifying risk can potentially have grave consequences. Fischer, Greitemeyer, Kastenmüller, Vogrincic and Sauer (2011) pointed out the negative impact of programs of a threatening nature on people in a broad variety of risk-taking domains. Watching high-risk sports activities may neglect a part of reality and the possible consequences of actual high-risk practices could lead to injuries or death (Kerr, 2007).

Acknowledgments

Thanks to Neil Rowlandson for his help.
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**Appendix**

Appendix 1. The 15 situations in the real life condition (Questionnaire 1)
Skydiving. During your vacation near a flying club, you have registered for a skydiving course. You are at 1000 m. The door of the plane is open: the height of the fall is revealed to you. It's up to you to jump.

Skijumping. You are skiing and you are getting ready to jump from the top of a springboard of 10 meters high.

Cycling. You are deciding to go cycling with the cycling club of your region.

Bobsleigh. You are on winter holidays in the mountains. It is proposed to you to go for a ride in a bobsleigh.

Rally driving. You are taking part in a car rally in Auvergne. You are to accompany the pilot.

Climbing. You are attached by rope to other climbers on a rock face. You are in third position.

Football. You are playing a football match against a famous team.

Swimming. You are on holidays and you decide to improve your swimming techniques in swimming pool.

Bungee jumping. You are jumping from the top of a bridge over a fast-flowing river.

Boxing. You are taking part in a boxing match. You have never met your opponent. You get into the ring.

Running. You are participating in a race. Hundreds of athletes around you are impatient and excited as they went for the departure to be given.

Paragliding. You must do paragliding alone without being in the company of the instructor.

Surfing. You are surfing in Hawaii.

Rambling. You are going with a club for a hike of several kilometers.

Rafting. You are rafting on a mountain river, which is extremely fast-flowing, and on which dangerous looking rocks can be seen on the surface.

Appendix 2. The 15 situations used in the TV program condition (Questionnaire 2; You are
watching…) and also the talking about the TV condition (Questionnaire 3; In a train, you hear a conversation about…).

**Skydiving.** A television report on a first skydiving jump at an altitude of 1000 meters in skydiving.

**Skijumping.** A television report where skiers perform springboard jumps.

**Cycling.** A television report on the cycling tours of a cycling club.

**Bobsleigh.** A television report on bobsleigh racing.

**Rally driving.** A television report on a car rally in Auvergne.

**Climbing.** A television report on the progress of a mountain climbers people on a rock face.

**Football.** A television report on a football game when one of the two teams is very famous.

**Swimming.** A television report on swimming techniques in a swimming pool.

**Bungee jumping.** A television report on acrobatic figures executed by people bungee jumping off the top of a bridge above a fast-flowing river.

**Boxing.** A television report on a boxing match between boxers who have never met before...

**Running.** A television report on the start of a marathon.

**Paragliding.** A television report on the practice of paragliding when participants no longer need the help of the instructor.

**Surfing.** A television report on surfing in Hawaii.

**Rambling.** A television report on a hiking trip of several kilometers.

**Rafting.** A television report on rafting down an extremely fast-flowing mountain river, on which dangerous looking rocks can be seen on the surface.
SPORTS TELEVISION AND PROTECTIVE FRAME

Table 1

The 15 Situations Ordered by the Mean of the Participants' Responses for the Six Viewpoints

<table>
<thead>
<tr>
<th>Threat Q#1</th>
<th>0PF</th>
<th>Interest Q#2 Watch TV 1PF</th>
<th>Interest Q#3 Talk about TV 2PFs</th>
<th>Personal Experience Q#4</th>
<th>TV Habits Q#4</th>
<th>Perceived Risk Q#5</th>
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<td>SD</td>
<td>Situations</td>
<td>M</td>
<td>SD</td>
<td>Situations</td>
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<td>Paragliding</td>
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<td>5.21</td>
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<td>Football</td>
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</table>

Q# = Questionnaire number
PF = Protective Frame

The higher means correspond to the higher levels of threat (Q#1), to the higher levels of interest in watching TV (Q#2), to the higher levels of interest in talking about TV (Q#4), to the higher levels of personal experience (Q#4), to the higher levels of TV habits (Q#5), and to the higher levels of perceived risk (Q#6).
Table 2

*Correlations between the Assessments Performed under the Six Viewpoints*

<table>
<thead>
<tr>
<th></th>
<th>Threat Q#1</th>
<th>Watch TV Q#2</th>
<th>Talk about TV Q#3</th>
<th>Personal Experience Q#4</th>
<th>TV Habits Q#5</th>
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<td>.65**</td>
<td>.76**</td>
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<td>.90**</td>
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<td>.95**</td>
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<td>.63*</td>
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<tr>
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<td>.95**</td>
<td>1.00</td>
<td>.57*</td>
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<td>.59*</td>
</tr>
<tr>
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<td>.57*</td>
<td>.57*</td>
<td>1.00</td>
<td>-.33</td>
<td>-.75**</td>
</tr>
<tr>
<td>TV Habits</td>
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<td>.65**</td>
<td>.52*</td>
<td>.59*</td>
<td>1.00</td>
<td>.29</td>
</tr>
<tr>
<td>Perceived Risk</td>
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<td>.63*</td>
<td>.59*</td>
<td>.75**</td>
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</table>

Q# = Questionnaire number  
PF = Protective Frame  
** = p < .01 is significant  
* = p < .05 is significant
Figure 1. Distribution of the Spearman rank correlation coefficients computed on an individual basis between the zero-frame condition and the one-frame condition.
Figure 2. Distribution of the Spearman rank correlation coefficients computed on an individual basis between the zero-frame condition and the two-frame condition.