Spor Bilimleri Dergisi
Hacettepe Journal of Sport Sciences
2014, 25 (1), 11-22

Perception of Risk and Attractiveness of Extreme Sports Among Turkish University Students

Üniversite Öğrencilerinin Extrem Sporlara İlişkin Risk ve Çekicilik Algıları

Araştırma Makalesi

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ABSTRACT

The aim of this study was to investigate the perceived risk and attractiveness of extreme sports with regard to gender. The secondary aim of this study was to test the differences in perceived risk and attractiveness of extreme sports between students with experience in these sports and those without experience. "Extreme Sport Risk Perception and Attractiveness Scale", developed by the researchers, was used to assess university students' perception of the risk and attractiveness of extreme sports. The study group included 1479 female and 1259 male university students. MANOVA analysis revaled significant differences in perceived risk and attractiveness of extreme sports in terms of gender and participation in extreme sports ($p< 0.05$). Males and extreme sport participants found, except three sports, all extreme

ÖZ

Bu çalışmanın amacı, extrem sporlarında algılanan çekicilik ve riskin cinsiyete göre incelenmesidir. Çalışmanın ikincil amacı ise, extrem sporları ile uğraşan ve uğraşmayan öğrencilerin extrem sporlarında algıladıkları çekicilik ve risk düzeyleri arasında fark olup olmadığının test edilmesidir. Üniversite öğrencilerinin extrem sporlarına ilişkin çekicilik ve risk algılarını değerlendirmek için araştırmacılar tarafından geliştirilen, "Extrem Sporları Risk Algısı ve Çekicilik Ölçeği" kullanılmıştır. Çalışma grubu 1479 bayan 1259 erkek üniversite öğrencisinden oluşmaktadır. MANOVA analizleri, extrem sporlarına katılım durumu ve cinsiyete göre, extrem sporlarına ilişkin algılanan çekicilik ve algılanan riskin farklılaştığını ortaya koymuştur ($p<0.05$). Erkekler ve daha önce extrem sporlara katılmış olanlar, kadınlara ve daha önce katılma-

Geliş tarihi: 27. 09. 2013
Yayına kabul tarihi: 17. 02. 2014

sports less risky than females and non-participants. Furthermore, males perceived motor sports more attractive than females but females perceived land and waters sports more attractive. Extreme sport participants, except one sport, found extreme sport as more attractive than non-participants. In conclusion, the risk perceptions of extreme sports differ according to gender and participation or not in extreme sports.

Key Words
Risk, Attractiveness, Adventure sports, Gender

mış olanlara göre üç spor hariç, tüm extrem sporlarını daha az riskli bulmaktadırlar. Ayrıca, erkekler kadınlara göre motor sporlarını daha çekici bulurken, kadınlar kara ve su sporlarını daha çekici bulmaktadırlar. Ekstrem spor yapmış olanlar, bir spor hariç, extrem sporları yapmamış olanlara göre daha çekici bulmaktadırlar. Sonuç olarak, extrem sporlardaki risk algısı, cinsiyete ve daha önce bu sporlara katılıp katılmama durumuna göre farklılık göstermektedir.

Anahtar Kelimeler
Risk, Çekicilik, Macera sporları, Cinsiyet

INTRODUCTION

Over the past two decades, participation in extreme sports has grown despite the high prevalence of injuries (Pain and Pain, 2005; Turner, et al., 2004, Zuckermann, 1983). Extreme events, by definition, can cause significant harm to people, property and the natural world. They sometimes result from the vagaries of nature, as in the cases of flood, earthquake or storm, and thus are truly the outcomes of "games against nature", Slovic and Weber (2002). Generally, extreme sports are synonymous with risk and risk taking or sensation seeking (Fave, et al., 2003; Zuckermann, 1983). Risk can be described as the likelihood of being harmed or of losing in extraordinary circumstances (Cooper, 2003), as the potential to lose something of value, or as simply a potential accident (Brown, 1998). In sport, risk is about the probability of physical hazard (Rossi and Cereatti, 1993). The extreme sports are associated with varying rates of risk, as each one encompasses different settings, techniques, equipment, attitudes, and behavioral factors, and this risk attracts and motivates the participants. Sports such as sky diving, altitude mountain climbing, rock climbing, whitewater rafting, motor-cycling, skydiving, and paragliding are among the group of sports associated with a high risk (Leaman and Fitch, 1986; Pedersen, 1997; Schrader and Wann, 1999; Florenthal and Shoham, 2001; Davis-Berman and Berman, 2002; Demirhan, 2005; Martha, et al., 2009) and risk means very high levels of outcome uncertainty, a very high probability of doing something wrong and high probability of death (Slanger and Rudestam, 1997).

To date, there have been a wide range of classifications and definitions of risk. The New Zealand Mountain Safety Council classified risk as absolute, real or perceived risk based on Haddock's accounts in the literature. Absolute risk is the uppermost limit if the risk is inherent in a situation. Real risk is the extent of the risk that actually exists at a given moment in time. On the other hand, perceived risk is an individual's subjective assessment of real risk present at any time (Haddock, 1993; Dickson and Dolnicar, 2004).

Risk perception is the subjective assessment of the probability of a specified type of accident happening and how concerned we are with the consequences (Sjöberg, et al., 2004). For instance, some people perceive almost all situations as risky, while others rarely perceive them as dangerous. This difference lies in the tendencies of risk-taking and risk-avoidance. Research has shown that people's perceptions of risk are influenced by an interactive combination of situational, attitudinal and behavioral biasing factors (Cooper, 2003). Risk perception is also related to the actual risk exposure, such as based on the climbing (a kind of high-risk sport) modality practiced, which supports the relatively realistic nature of risk perception (Martha, et al.,2009).

Various studies have been carried out on risk perception for large sections of the commu-

nity, such as in the fields of health care, ecology, technology, and culture, etc. (Slovic, 1987; Sjöberg, 2000; Slimak and Dietz, 2006; Chauvin, et al., 2007; Willis and DeKay, 2007; Codern et al., 2010). In recent years, the growing popularity of adventure recreation directed researchers to study risk perception in extreme sports (Pedersen, 1997; Vagias, et al., 2005). Generally, most of the previous studies in extreme sports focused on the real risk (Shlim and Gallie, 1992; Langran and Selvaraj, 2002; Boulware, et al., 2003; Faulhaber, et al., 2007) or focused on the psychological and demographic characteristics of extreme/high risk sports athletes (e.g. Aşçı, et al., 2007; Breivik, 1996; Llewellyn and Sanchez, 2008; Rossi and Cereatti, 1993) or risk perception among mountaineers (Demirhan, 2005); extreme racers (Schneider, et al., 2007); rock climbers (Fave, et al., 2003); However, there are a few studies in the literature on risk perception of adventure sports and attractiveness of such sports (Pedersen, 1997) in general population groups/ non sports groups such as children, adolescents.

Thus one of the aim of this study was to examine the perception of risk and attractiveness of extreme sports in general population of university students in terms of gender. There are few attempts for studying gender differences in risk perception and attractiveness of adventure sports and these studies reported consistent results on gender differences in risk perceptions of high risk sport athletes but not general population. For example, Demirhan (2003), Demirhan (2005), and Kontos (2004) concluded that male mountaineers perceived the outdoor-adventure sport as less risky than females. Although the risk perception and gender differences in risk perceptions of outdoor adventure sports were investigated by some researchers, within our knowledge, only one study examined attractiveness of these sports. For example, Pedersen (1997), studied the interaction among risk perception, attractiveness and possibility of participation in high risk sports among university students. Pedersen (1997) reported the likelihood of participation to be directly related to appeal and inversely related to perceived risk. Ewert (1989), reported a close relationship between the activities in which a participant engages and their risk perception in high risk sports.

This study also aimed to examine risk perception and attractiveness of extreme sports with regard to previous experience in extreme sports (participants versus non-participants). In this context, Slanger and Rudestam (1997)'s, study results are remarkable. The findings of the study carried out among participants in high-risk outdoor activities showed that participants do not consider their jobs as excessively risky, and they perceive that they have significant control, since experience with activities can sometimes lead to a reduction in perceived risk (Horvath and Zuckerman 1993). In contrast, non-participants are usually informed about risk associated accidents through the media and press and are thus more apprehensive (Demirhan, 2005).

Based on the previous studies, three hypotheses were put forward in this study: (i) Male and female university students would have different risk perception of extreme sports; (ii) Perceived attractiveness of extreme sports would vary with regard to gender (iii) Perceptions of risk and attractiveness would vary between participants and non-participants in extreme sports.

METHOD

Participants: One thousand four hundred seventy nine female (*M*age = 22.06; SD = 1.90) and 1259 male (*M*age = 22.31; SD = 2.44) university students from different departments voluntarily participated in the study. 624 (22.8 %) participants have reported experiences with extreme sport, 2114 (77.2 %) have reported no experiences with extreme sports.

Permission to administer the scale in universities was obtained from the Higher Education Council. The study was approved by the Ethical Commission of Hacettepe University, Ankara, Turkey. Only volunteer students were included in this study.

Data Collection-Instrument and its Development: "Extreme Sports Risk Perception and Attractiveness Scale", which was developed by the researchers, was used to assess the perception of risk and attractiveness of extreme sports among university students.

The scale includes 30 extreme sports that are widely known throughout the world and were frequently considered in many previous studies as extreme sports (e.g., Crane, 1989; Pedersen, 1997; Slanger and Rudestam, 1997; Shipside, 2006). A pilot study was conducted to test whether or not university students are familiar with these 30 extreme sports. The results of the pilot study indicated that each sport was known among university students at rates ranging from 91% to 100%.

The Likert scale was used to develop the "Extreme Sports Risk Perception and Attractiveness Scale". The six-point Likert scale was selected in designing the scale by considering the suggestions in the literature. For reliability and validity, the best number of options for a Likert scale is between 4 and 7 (Lozano, et al., 2008). Participants rated perceived risk and attractiveness of each extreme sport on a 6–point scale anchored 0 (not) to 5 (extremely). A high score on each extreme sport indicated a high degree of risk perception and attractiveness. Participants completed the data collection regarding risk perception and attractiveness of each extreme sport at the same time. Both perception of risk and attractiveness were queried on the same sheet. First, participants decided the level of perceived risk of each extreme sport and then decided its perceived attractiveness.

Principal component factor analysis was carried out to test the factorial validity of the developed scale for university students. For risk and attractiveness scales, separate principal component factor analysis with varimax rotation was conducted. Results of factor analysis revealed five factor structures for risk and attractiveness scales, and the 30 sports explained 58.34% of variance for risk perception scales and 62.50% of variance for attractiveness scales. The factor loading for risk perception scales ranged from 0.47 to 0.82. For the attractiveness scales, the factor loadings were between 0.51 and 0.87. The obtained five subcategories of extreme sports were partially in line with the classification of Tomlinson and Leigh (2004). Tomlinson and Leigh (2004), divided extreme sports into those that take place in air, land or water. The air sports mentioned included: jumping, bungee jumping, gliding, hang gliding, high wire, ski jumping, sky diving, sky surfing and sky flying. Land sports included: indoor climbing, adventure racing, mountain biking, mountain boarding, and outdoor climbing. Water sports included open water swimming, scuba diving, snorkeling, speed sailing, surfing, wakeboarding, whitewater, and windsurfing... (Tomlinson and Leigh, 2004).

The reliability evidence for each subcategory of extreme sports was determined by Cronbach Alpha internal consistency. The internal consistencies of the five subcategories of the risk perception scale were 0.90 (motor sports), 0.86 (water and aero sports), 0.83 (winter sports) and 0.69 (land sports). For the attractiveness scale, the internal consistencies were 0.94 for motor sports, 0.90 for aero sports, 0.86 for winter and water sports, and 0.69 for land sports. For both scales, the internal consistency for total scores were 0.92. The internal consistencies of scales were within the acceptable ranges (Gorge, 2003).

Data Analysis: Descriptive statistics were used to calculate mean and standard deviations of the study variables. In addition, two separate $2 \times 2 \times 5$ (Gender: Male/Female x Participation status of extreme sport: Participants/Non-Participants x risk/attractiveness perception of subcategories of extreme sports [land, water, winter, aero, and motor sports]) MANOVA were conducted to test the gender and experience with extreme sport differences in risk perception and attractiveness of extreme sports respectively. The Box's Test of Equality of Covariance Matrices checks the assumption of homo-

geneity of covariance across the groups using $p < .001$ as a criterion. The test is significant (p= 0.000). However, as reported by Tabachnick and Fidell (2001), if the larger samples produce larger variances and covariances, then the alpha level is conservative and the null hypothesis can be rejected confidently. In other words, the significant finding of Box's test can be trusted for using MANOVA. In this study sample size is large and also produce larger variances and covariances. In this case, the use of Pillai's criterion is suggested. That's why in this study the Pillai's values was used.

FINDINGS

Table 1 and 2 represents the means and standard deviations of risk perception of each extreme sports and their perceived attractiveness depending on gender and participation status of extreme sport.

Table 1. Perceived risk and attractiveness of each extreme sport with regard to gender

Extreme Sports	Perceived Risk				Perceived Attractiveness			
	Female		Male		Female		Male	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Land Sports Total	2.87	0.75	2.74	0.83	2.81	1.02	2.67	1.00
Altitude mountain climbing	4.16	1.06	3.98	1.17	3.07	1.65	3.10	1.61
Rock climbing	4.12	1.04	3.92	1.21	2.69	1.66	2.87	1.62
Trekking	0.97	1.15	1.15	1.33	3.27	1.61	2.74	1.61
Orienteering	1.78	1.38	1.56	1.37	2.66	1.65	2.51	1.59
Caving	3.08	1.38	2.80	1.44	2.47	1.64	2.55	1.56
Mountain biking	2.70	1.35	2.56	1.43	2.97	1.56	3.00	1.52
Water Sports Total	2.81	0.94	2.57	0.97	3.14	1.10	3.00	1.08
Rowing	2.44	1.38	2.08	1.41	2.68	1.50	2.73	1.46
Canoeing	2.56	1.43	2.26	1.43	2.80	1.51	2.76	1.42
Surfing	3.05	1.31	2.67	1.34	3.16	1.54	3.05	1.51
Sailing	2.59	1.28	2.28	1.28	3.00	1.50	2.85	1.44
Water skiing	3.03	1.29	2.69	1.33	3.01	1.50	2.90	1.48
Open water swimming	1.51	1.32	1.60	1.39	3.80	1.56	3.43	1.58
Rafting	3.63	1.24	3.38	1.30	3.47	1.54	3.40	1.50
Scuba diving	3.39	1.34	3.40	1.50	3.44	1.59	3.23	1.59
Winter Sports Total	3.69	0.96	3.44	1.04	2.77	1.33	2.72	1.28
Alpine skiing	3.66	1.23	3.45	1.29	3.12	1.58	2.98	1.56
Nordic skiing	3.54	1.16	3.19	1.27	2.65	1.49	2.59	1.49
Tour skiing	3.76	1.21	3.40	1.31	2.50	1.53	2.59	1.54
Snowboarding	3.64	1.20	3.46	1.27	2.93	1.65	3.08	1.58

Aero Sports Total	4.23	0.84	3.99	0.97	3.30	1.46	3.21	1.44
Parachute jumping	4.05	1.13	3.90	1.23	3.69	1.59	3.65	1.56
Hang gliding	4.02	1.07	3.82	1.21	3.33	1.61	3.24	1.60
Cliff jumping	4.49	0.93	4.21	1.12	2.98	1.78	3.07	1.71
Paragliding	4.03	1.11	3.81	1.26	3.45	1.64	3.36	1.63
Bungee jumping	4.17	1.22	3.78	1.41	3.26	1.85	3.29	1.75
Motor Sports Total	3.64	0.97	2.91	1.13	2.49	1.51	3.30	1.25
Carting	2.96	1.46	2.13	1.49	2.84	1.75	3.60	1.50
Off road	3.12	1.32	2.43	1.38	2.74	1.72	3.44	1.51
Rally	3.58	1.29	2.91	1.39	2.74	1.76	3.48	1.50
Auto track	3.87	1.23	3.14	1.46	2.44	1.74	3.20	1.60
Motor piste	3.70	1.24	3.17	1.39	2.39	1.72	3.15	1.57
Motor cross	3.79	1.21	3.23	1.38	2.35	1.72	3.15	1.55
Motor track	3.92	1.22	3.33	1.43	2.24	1.73	2.98	1.63

As it can be seen from Table 1 and 2, female and male university students and also extreme sport participants and non-participants rated aero sport as more risky than other sports. Cliff jumping, bungee jumping, altitude mountain climbing, rock climbing, parachute jumping were rated as five most risky sports by female and male university students. University students who participated in extreme sports and who did not perceived the risk of extreme sports in a similar way. They rated cliff jumping, altitude mountain climbing, rock climbing, bungee jumping and parachute jumping as the most risky sports. Table 1 and 2 also showed that female university students perceived the aero sports as more attractive but for males the motor sports were rated as more attractive. The open water swimming was the most attractive extreme sports for females and non-participants. On the other hand, the parachute jumping was the most attractive sports for males and participants. Both participants and non-participants perceived aero sports more attractive.

MANOVA revealed significant overall gender and participation in extreme sport main effect for risk perception of adventure sports. On the other hand, no significant interaction effects occurred (Table 3).

The significant multivariate main effect of gender and participation in extreme sport can be attributed to all subcategory of extreme sports (Table 4). An inspection of the means reveals that males scored lower than females on risk perception of each extreme sports subscategories. For each extreme sport, females perceived more risk than males (Table 1). In addition, participants who participated in these sports found these sports less risky than participants who did not.

MANOVA analysis also revealed significant overall gender differences in attractiveness of extreme sports (Table 3). Follow-up univariate analysis indicated land and water sports were more attractive for females than males (Table 2 & Table 4). On the other hand, males found motor sports more attractive than females ($p < 0.05$).

Table 2. Perceived risk and attractiveness of each extreme sport with regard to participation Status in extreme sports

Extreme Sports	Perceived Risk				Perceived Attractiveness			
	Non-Participants		Participants		Non-Participants		Participants	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Land Sports Total	2.84	0.77	2.58	0.90	2.74	1.01	2.88	1.04
Altitude Mountain Climbing	4.19	1.02	3.72	1.24	2.94	1.64	3.58	1.48
Rock Climbing	4.16	1.02	3.57	1.32	2.57	1.61	3.45	1.56
Trekking	1.04	1.25	1.08	1.18	3.01	1.64	3.09	1.60
Orienteering	1.78	1.40	1.34	1.27	2.48	1.62	2.95	1.61
Caving	3.19	1.28	2.13	1.54	2.42	1.59	2.78	1.64
Mountain Biking	2.65	1.37	2.60	1.45	2.98	1.57	2.99	1.60
Water Sports Total	2.76	0.94	2.29	0.99	3.06	1.07	3.26	1.21
Rowing	2.39	1.40	1.90	1.34	2.69	1.48	2.76	1.52
Canoeing	2.56	1.43	1.97	1.37	2.75	1.44	2.88	1.55
Surfing	2.99	1.31	2.48	1.37	3.05	1.52	3.31	1.54
Sailing	2.53	1.28	2.17	1.30	2.88	1.46	3.12	1.52
Water Skiing	2.97	1.29	2.52	1.36	2.92	1.47	3.09	1.57
Open Water Swimming	1.59	1.34	1.44	1.38	3.63	1.57	3.62	1.61
Rafting	3.63	1.22	3.13	1.37	3.34	1.54	3.77	1.42
Scuba Diving	3.42	1.29	2.99	1.45	3.26	1.59	3.64	1.57
Winter Sports Total	3.61	0.99	3.38	1.07	2.73	1.31	2.91	1.28
Alpine Skiing	3.66	1.24	3.24	1.82	2.98	1.59	3.30	1.50
Nordic Skiing	3.47	1.18	3.07	1.31	2.55	1.48	2.88	1.48
Tour Skiing	3.66	1.24	3.29	1.36	2.48	1.52	2.83	1.57
Snowboarding	3.61	1.21	3.33	1.31	2.88	1.62	3.40	1.56
Aero Sports Total	4.15	0.89	3.95	1.03	3.24	1.46	3.41	1.37
Parachute Jumping	4.07	1.12	3.68	1.31	3.60	1.61	3.94	1.43
Hang Gliding	4.01	1.09	3.64	1.27	3.21	1.64	3.59	1.45
Cliff Jumping	4.44	1.00	4.10	1.23	2.90	1.75	3.46	1.66
Paragliding	4.03	1.11	3.55	1.37	3.29	1.66	3.83	1.49
Bungee jumping	4.11	1.26	3.59	1.47	3.19	1.18	3.57	1.72
Motor Sports Total	3.35	1.08	3.12	1.21	2.84	1.45	2.89	1.53
Carting	2.67	1.54	2.27	1.45	3.18	1.68	3.21	1.67
Off Road	2.88	1.38	2.54	1.42	3.01	1.66	3.22	1.67
Rally	3.37	1.35	2.94	1.42	3.03	1.68	3.26	1.69
Auto Track	3.63	1.35	3.21	1.47	2.75	1.71	2.91	1.75
Motor Piste	3.53	1.30	3.19	1.44	2.71	1.68	2.83	1.74
Motor Cross	3.60	1.28	3.29	1.42	2.63	1.67	3.02	1.72
Motor Track	3.73	1.31	3.38	1.45	2.54	1.70	2.71	1.78

Table 3. Results of the two-way multivariate analysis of variance with gender, and participation status as independent factors and the five subscales as dependent variables

Effect	Pillai's Trace	F (5, 2047)	α-level	η^2
Perceived Risk				
Gender	0.04	18.05	= 0.000	0.04
Participation Status	0.03	10.82	= 0.000	0.03
Gender x Participation Status	0.003	1.05	= 0.385	0.003
Perceived Attractiveness	F (5, 2005)			
Gender	0.05	21.89	= 0.000	0.05
Participation Status	0.005	1.97	= 0.080	0.005
Gender x Participation Status	0.00	0.17	= 0.973	0.00

Table 4. Results of the univariate analyses of variance for the main effects of gender and participation Status

Variable	Main effect gender	α-level (df=1,2051)	η^2	Main effect participation status	α-level (df=1,2051)	η^2
Perception of Risk						
Land Sports	3.83	=0.05	0.002	23.45	=0.000	0.011
Water Sports	5.14	=0.023	0.003	49.80	=0.000	0.024
Winter Sports	13.26	=0.000	0.006	10.48	=0.001	0.005
Air Sports	18.80	=0.000	0.009	9.71	=0.002	0.005
Motor Sports	87.65	=0.000	0.041	7.78	=0.005	0.004
Perception of Attractiveness		(*df*=1,2009)			(*df*=1,2009)	
Land Sports	4.07	=0.044	0.002	4.25	=0.039	0.002
Water Sports	4.61	=0.032	0.002	6.94	=0.008	0.003
Winter Sports	0.47	=0.494	0.00	3.85	=0.050	0.002
Air Sports	0.28	=0.600	0.00	2.89	=0.089	0.001
Motor Sports	68.95	=0.000	0.033	0.04	=0.849	0.000

Although MANOVA results did not demonstrate an overall significant participation in extreme sport main effect for attractiveness of the extreme sport, follow-up univariate analysis indicated that extreme sports participants perceived land, water and winter sports more attractive than non-participants (Table 4). The interaction effect was not significant.

DISCUSSION

This study aimed to test differences in the risk perception and attractiveness of extreme sports with regard to gender, and participation in extreme sport.

Descriptive analysis indicated that male and female university students, extreme sport participants and non-participants rated each extreme sports similarly in terms of risk perception. Specifically, cliff jumping, bungee jumping, altitude mountain climbing, rock climbing, and parachute jumping were rated as the five sports with the greatest risk by both genders and both sport participation groups. In general, the obtained mean ratings of Turkish university students on the risk perception of extreme sports were similar to the previous findings of Pedersen (1997), among United States university students and of Demirhan (2003; 2005) and Dinç et al. (2004) among Turkish mountaineers.

As expected, the findings of the present study indicated significant gender differences in the risk perceptions of extreme sports. Consistent with the hypothesis of the study, males generally perceived most of the extreme sports as less risky than females. These results concur with the findings of Demirhan (2003). The obtained gender differences were also supported by the results of Soori (2000)'s and Dinç, et al., (2004) and the others' studies, which reported higher average risk perception by females. The gender differences may be explained by traditional social and peer group roles and the rules regarding female participants. Such a difference might be related to the traditional roles (Cordes and Ibrahim, 1999), which may cause risk perception differences between males and females. In addition, research has been carried out in different fields, which also reported gender differences in risk perception (Alexander, et al., 1990; Gustafson, 1998; Slimak and Dietz, 2006; Chauvin et al., 2007). It may be socially desirable for boys to perceive less risk in sports (Coakley, 2001). Furthermore, this gender difference may be reflective of the fact that boys engage in more risk taking behaviors in sport than girls (Kontos, 2004).

This study also intended to test the perceived attractiveness of extreme sports with regard to gender. Motor sports were found to be more attractive to males than females. On the other hand, females rated land and water sports as more attractive than males. Waters sports are more appealing to females while motor sports are more appealing to males, which can be explained by the cultural and social gender role norms (Kerr and Vlaminkx, 1997). According to Kerr and Vlaminkx (1997), young males may be actively encouraged to take part in risky activities while young females may find their participation in the same activities somehow regulated or inhibited. Young females, with their more limited experience, may therefore feel differently when faced with a novel risky activity. It is observed that real risk rates are low for land and water sports, and female participants largely prefer these types of sports. There is a direct relationship between appeal and likelihood of participation and an inverse trend between perceived risk and participation (Pedersen, 1997).

The risk perception would be different for students who participated in extreme sports (participants) compared to non-participants. Participants perceived lover mean risk than nonparticipants, and this was supported by the data. Thus, it can be said that participation and non-participation in extreme sports may be associated with differences in risk perception. Participants may better analyze the risks posed by objective and subjective threats. Participants may also better assess risk because experience modifies one's opinion about useful tips, prin-

ciples and knowledge (Demirhan, 2005). Horvath and Zuckerman (1993) have suggested that past successful experiences with risk taking may lead to a education in perceived risk, potentially increasing the likelihood that an athlete would take risks in sport. According to Slanger and Rudestam (1997), participants in high-risk sports state that they have significant control and that they do not think of risk while engaging in the activity. Nonparticipants, on the other hand, perceived risk more than the group participate extreme sports before. may not recognize risk. Such opinion seems consistent with the views of experienced participants (Demirhan, 2005).

Participants perceived extreme sports as more attractive than non-participants except for aero and motor sports. The results about motor and aero sports are not explained by any certain reason because non-participants perceived all motor sports as more risky. According to "Top down model of risk perception" (Ganzach, et al., 2008), there is a negative relationship between attractiveness and perceived risk. This model supports our study results because participants' risk perception levels were less than non-participants'. In addition, Pedersen (1997), reported the likelihood of participation to be directly related to appeal and inversely related to perceived risk.

In conclusion, the risk perceptions of extreme sports differ with regard to gender and participation or non participation in extreme sports. This research was conducted solely among Turkish university students. More comprehensive studies are needed involving university students from various countries, especially those in which extreme sports are more popular and frequently performed, such as in the United States, Canada, New Zealand, Italy, Austria, Switzerland, France, Poland, Russia, and Germany. Further studies in other countries may provide additional information about risk perception and attractiveness in extreme sports from a different cultural perspective.

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