

Original Article

Homo Extremius: A Neologism Proposed In Sports Science

Georgios Kipreos

University of Peloponnese, Department of Sports Management and Organization, Sparta, Greece Email: <u>kipreos@uop.gr</u>

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Abstract

The present study examines the evolution of modern humans about risk taking. First, the primitive, ancient and modern types of human beings, their skills, behaviors, and activities that exhibit a tendency towards constant risk taking are examined. Next, the biological, anthropological, social and psychological approaches to risk perception are explored. The purpose of the study is to illustrate that over the centuries many of the economic, social and even leisure sports activities have been performed on the verge of risk. The study draws on the different approaches to understanding extreme behaviors and risk perception. For this purpose, a relevant literature review is also attempted.

The human being craving for reaching the limits is a certain type of person, «Homo Extremius». «Homo Extremius» is a risky type of man who defies danger even at the cost of life. Research on risky behaviour, and the motives that drive it, could help prevent young people from risk taking actions and accidents, but it could also lead to better understanding adult risky behavior, and perhaps help channel this tendency towards a more controlled context.

Also, the profile and motivation for participating in dangerous situations, of which extreme sports are now part, are investigated.

Keywords: Homo extremius; Risk theories; Risk management; Extreme sports; Outdoor activities.

1. Introduction

Some people seek danger and people who avoid it because of their temperament and other factors. On the one hand, we have those who enjoy real benefits from accepting and dealing with risk, even though it greatly increases the likelihood of untimely death and on the other the people who avoid it. Of course, as people grow older they may move from one choice to the other (Henderson and Morgan, 1990).

Taking a risk and managing it is an integral part of life. Humans tend to seek risk in all facets of their life. Their financial and social activities during their free time reach the limits of risk (Goma-i-Freixanet, 1991a).

The purpose of this paper is to introduce a new category of "Homo", termed «Homo Extremius», as it is encountered throughout human history. It is a type of person with specific biological, psychological, anthropological and social characteristics. He takes a specific stance towards the danger even at the cost of his life and consciously seeks for high-risk activities.

The goals of the paper are to present the various types of humans from ancient times to the present day, demonstrating that danger has always existed in our lives and to also analyze the motivation that leads individuals to extreme behaviors. To this end, the major risk theories are presented, to provide insight into the behavior of risk and extreme behavior seekers.

Many researchers argue that it is a kind of addiction and can be observed in biological evolution, others that it is shaped by the coexisting socio-political situations and others that it is an individual attribute driven by personality. This paper attempts to analyze the approaches that motivate extreme behavior and to focus the interest in linking this behavior to extreme sports.

«Homo Extremius» is the type of person who looks for danger in the various manifestations of everyday life, at the risk of serious and permanent injury or even death. The range of motivations for engaging in risky activities is wide, with both biological and physiological factors involved. «Homo Extremius» takes satisfaction, emotion, and ultimately pleasure from the active involvement in extreme and dangerous situations.

2. Ancient and Modern Human Types

Modern man, according to the theories of Darwin and Lamarck, despite the occasional differentiations and mutations, is endowed with the entire genetic history of humanity and its evolutionary course. Therefore, the view that we inherently possess those genes that have allowed our distant ancestors to survive and evolve seems to partly explain risky behaviors, such as hunting, striving for survival or meeting new challenges (Llewellyn *et al.*, 2008).

In primitive societies, humans were faced with a multitude of dangers since the very beginning of their existence. The first dangers included weather conditions, the lack of food, the rest of the animal kingdom, the diseases that threatened our existence. As a result, people were involved in dangerous activities, either in search of

food or water, or to ensure survival, and their exploratory behavior resulted in some benefits but mainly in physical hazards such as injuries or even loss of life.

In order to overcome these dangerous situations, they developed excellent abilities and adaptations. For example, archaic forms of hominoids, such as Proconsul, due to their traditional living in woodland environments, had developed excellent arboreal and climbing adjustments (Hartwig, 2002). Later, the development of bipedalism freed the front ends, which could now be used for something other than walking. The free front ends have undergone many adaptive changes over time, resulting in extremely fine handling and precise movements (Fleagle, 2013).

Homo Habilis (capable or skilled man) was capable of making tools, walk steadily and better adapt to open environments (Henke and Tattersall, 2015; Wood, 1987). Likewise, Homo Erectus (the upright man), with increased intelligence, was an excellent hunter-gatherer, devised better tools and discovered fire. Fire allowed man to heat, inhabit the caves, prepare food, but also to develop socially, as people gathered around the fire trying to communicate and convey their impressions and knowledge about hunting, exploration of nearby places, manufacture and use of tools.

The discovery of fire was also crucial to migration to more northern and colder areas, where there was abundant food (Peretto, 1985; Weiner *et al.*, 1998).

Besides, Homo Neaderthalensis, the most recent prehistoric man and the closest species to modern man, was the first to build huts and garments for protection against the cold. Even though he has been attributed the stereotype of being wild and brutal, recent research findings point to an intelligent human being, with excellent adaptability to the harshest environmental conditions (Finlayson *et al.*, 2006; Henke and Tattersall, 2015; Peretto, 1985; Trinkaus and Shipman, 1993). Then, Homo Sapiens (the wise man) developed the ability to communicate with language and art, the essential elements of human life. The species spread throughout the world, to Australia and America (Stringer and Andrews, 2005; White *et al.*, 2003).

Over the years, different types of people have emerged. Accordingly, since the Enlightenment to today's intense consumer society, new types of 'Homo' were formed. Homo Universalis reflects the characteristics of the educated man, who emerged during the Enlightenment. This type expresses the mentally and spiritually integrated human being, with a concrete view as to scientific and cultural issues. Although the term was coined during the Renaissance, it has been expanded towards the past to include all major humans.

John Stuart Mill proposed Homo Economicus, the reasonable man who seeks financial prosperity and personal benefits. The idea came from the theories of Adam Smith and David Ricardo who first identified individual benefit as the driving force behind people's financial activities (Mill, 2020). Also, in 1965, Erich Fromm, sociologist, and psychotherapist, introduced the term Homo Consumers in Socialist Humanism. It refers to the need for consumption. Gad Saad expanded this theory in 2007 by introducing the term Homo Consumericus in "The Evolutionary Bases of Consumption". It refers to the phenomenon of mass consumption and links it to human psychology (Saad, 2007).

In modern societies, people have retained all the abilities, skills, and behaviors related to various actions in their lives to deal with dangerous situations. Danger has been present in every aspect of their lives. Risk management is, therefore, a universal concept, applicable to almost the whole range of human activities. In general, after the industrial revolution in the nineteenth century, and mainly from the twentieth century onwards, the majority of the human species began to show a clear tendency towards the active exploitation of leisure time. Full-time employment, increased income, reduced working weeks and working time, increased vacation periods, increased geographical and social mobility occurred in combination and created the prospect of more free time for citizens. The prospect of an era with leisure time available seemed both inevitable and challenging (Glyptis, 1989).

A key function of leisure activities is the emergence of enjoyable, exciting and stimulating activities. Leisure activities are associated with psychological needs and are intended to express a spontaneous, primordial, impulsive and enjoyable stimulation (Elias and Dunning, 1986). According to Rojek (1992), the reasons for the increased interest in consumption, entertainment, pleasure and leisure issues during free time were the rapid economic development of a leisure activity industry. The expansion of the consumer leisure and entertainment industry has created an active rejuvenation culture highlighting the importance of leisure and sport in social life organization. Thus, in a modern post-industrial society, a hedonistic ethos has begun to develop associated with the use of free time and consumption of goods and services (Wearing, 1998). After all, the dynamics of leisure time lies in the perpetual tension between the daily routine and the need for liberation from it Maguire (1992).

2.1. Risk Theories

Many researchers have been involved in the study of the motivations that drive people's actions, mainly studying judgment and decision making. Understanding how people make decisions and then act on them has implications in various disciplines such as law, medicine, finance, business. Great researchers, such as Maurice Allais, Herbert Simon, and Daniel Kahneman have been acclaimed and won Nobel prizes for their theories in this field. This paper focuses on the risk theories, that is, the incentives that drive a person to risky action.

Two key strategies and approaches have prevailed in the study of risk. The first approach concerns the psychology of mostly young, risk-taking people, and the second concerns the understanding of the process that controls the behavior of people whose job involves risk. We will be discussing the second, as it examines why adults choose risky and extreme behaviors. There are inherent traits related to this behavior, therefore we can talk about the «Homo Extremius» type, who seeks danger or we may talk about a pathological condition of addiction or harm. In order to present a more complete and well-argued view of «Homo Extremius», the review starts by presenting all of the causes and the reasons that drive individuals, from adolescence to adulthood, to seek risk.

2.2. Research Work and Studies on Preadolescence and Adolescence

Adolescents and young people are perhaps the most typical example of people with risk as a routine in their daily lives. For this reason, many researchers have dealt with this particular age group.

2.3. Fischoff's Decision-Making Behavioral Framework

Baruch Fischoff examined the behavior of young people in decision making. One of his most important findings was that young people do not regard themselves as invulnerable. Fischhoff puts forward a lot of evidence against the case of invulnerable and fearless young people. He argues that young people often overestimate their strengths, including the risk to their life (Bruine de Bruin *et al.*, 2007). Although young people do not consider themselves invulnerable or immortal, when questioned about how they believe they will die, they envision a not normal, premature death (Reyna and Farley, 2006).

To understand decision making, Fischhoff (2008) behavioral decision-making framework can be employed. Fischhoff devised a framework that provides guidance regarding the reliable evaluation of many components, as well as how subjective possibilities (what adolescents believe) and values (what adolescents want or prefer) are evaluated. Although subjective possibilities and values are key building blocks of the decision-making behavior framework, Fischhoff argues that social and emotional factors can influence behavior through these structures.

2.4. The Prototype-Willingness Model by Gerrard et al. (2008)

Like Fischhoff's decision-making behavioral model, the prototype-willingness model by Gerrard *et al.* (2008) originates in the approaches to expectations and their valueto people, as well as theories of reasoned action and planned behavior. Research conducted into decision-making, in addition to beliefs and values, includes control perceptions, social norms, and self-efficacy to determine behavioral intentions, which are then employed to predict actual behavior.

Most theories follow a single way of processing. They proceed from the logical assumption that if one's beliefs are based on incorrect criteria then that person's decisions will lead to a mistake. Likewise, the lack of adequate information could also lead to wrong decisions.

According to the prototype-willingness model, there is a reasoned decision-making path that involves risk, and a social response path that is primarily image-based. The prototypes are the typical members of the various social groups (e.g. smokers or non-smokers). The more favorable the image (e.g. of smokers), the more young people are willing to accept the social costs associated with engaging in risky behaviors (e.g. smoking).

Gerrard *et al.* (2008), refer to other external factors that significantly influence young people's decision-making, such as their exposure to the media that promote alcohol or violence as well as their level of access to alcohol or drugs in their neighborhoods which affects the chances for their exposure to risk.

It is reasonable to conclude that the ease of access (to alcohol, substances, gang participation) favors use. On the other hand, in cases where access was difficult, young people were less willing to search for drugs or alcohol or to join a group. These results reinforce the importance of the framework advocated by Steinberg (2008).

2.5. Developmental Neuroscience Model

Casey *et al.* (2008), also propose a dual-process model. There are three neuroimaging techniques. Structural MRI is used to measure the size and shape of brain structures, functional MRI is used to measure patterns of brain activity while diffusion MRI (DTI) is used to map white matter tractography.

Despite the inherent challenges, Casey and his associates make this material accessible to a wide audience. Researchers look for an easy-to-read, integrated overview of risk-taking research and research based on the processes of the adolescent brain. Moreover, as the present review pinpoints, research in behavioral neuroscience plays a key role in the bulk of evidence regarding adolescent risk-taking necessary to understand social, emotional, and cognitive developmental mechanisms.

As Casey *et al.* (2008) argue, there is widespread consensus among developmental researchers regarding the fact that cognitive control (inhibition) increases with age, from childhood to adolescence. This increase is related to the maturation of the frontal cortex. The importance of cognitive control is fundamentalbecause it has serious implications on a person's social, emotional, cognitive and biological development. More specifically, the researchers report that "the cornerstone of a person's cognitive development is the ability to suppress inappropriate thoughts and actions in favor of the target-driven ones, especially in the presence of imperative motivations". At this point, there is an immediate link to education, mental health or law enforcement; issues not directly related to young people's physiological abilities.

The dual-process aforementioned is partly supported by findings showing that there is different development in different areas of the brain. Although the frontal cortex, critical to cognitive control, matures relatively slowly from infancy to adolescence, the sensory areas mature relatively quickly.

Thus, in Casey's model, adolescent risk seeking is the result of unequal competition between the immature frontal cortex control and the activation of satisfaction and pleasure areas that reflect increased reward response.

Furthermore, Galvan *et al.* (2007) demonstrated that, in all ages, individual differences in risk taking were of the utmost importance. Regarding cognitive control, impulsivity (i.e. difficulty in inhibition) was found to vary from age to age. However, impulsivity was not associated with the activation of the nucleus accumbens. These findings are consistent with recent work which shows that impulsivity is distinguished from risk-taking preferences (Green and Myerson, 2004; Myerson *et al.*, 2003; Reyna and Farley, 2006).

Therefore, although terms like "impulse" and "risk seeking" have been used extensively to describe adolescent behavior, Casey and his colleagues re-examine the evidence supporting the conclusion that "young people have different cognitive and neurotic functioning processes which are of the utmost importance".

2.6. Social Neuroscience Development Framework

Steinberg (2008), summarizes, organizes, and interprets a wealth of data on the effects of sex hormones during adolescence. More specifically, he researched oxytocin, a hormone produced in the posterior pituitary gland at the base of the brain and involved in the process of social relations of young people. His research examined the feeling of anger in young people through neuroimaging. One of his conclusions was that people who are susceptible to peer pressure are more likely to feel anger.

Like Casey *et al.* (2008), Steinberg organizes his dual procedure approach around the observation that risk taking seems to increase between childhood and adolescence and then decreases again in adulthood. Linear or monotonous trends in cognitive control cannot explain these trends because the prediction that children should be more ready to risk than adolescents is not true, assuming that all other factors are identical, such as the opportunity for risk.

Steinberg (2008), argues that adolescents' rational reasoning and information processing abilities are similar to those of adults, and therefore the factors that lead adolescents to engage in risky activities are social and emotional rather than cognitive.

Research into the reasoning and processing of information in adolescents has shown that the underlying competence of rational or probabilistic reasoning is present already during elementary school, but does not necessarily participate in adult decision-making (Reyna and Brainerd, 1994).

Like Gerrard *et al.* (2008), Casey *et al.* (2008), so Steinberg points to a "social-emotional system that drives the increase in satisfaction that adolescents seek, especially in the presence of their peers".

A study on simulated driving in adolescents (mean age 14 years), adolescents (mean age 20 years) and adults (mean age 34 years) also points to the same conclusion. Individuals drive alone or in the presence of friends (Gardner and Steinberg, 2005). In the research, a yellow light indicates that a wall will appear and the car will collide. The more kilometers they make, the more points they get, but they are also at risk of colliding with the wall. The mere presence of friends doubled risk-taking among adolescents and young people but did not affect adults. Steinberg (2008), concludes that this research shows that social stimuli, such as peer acceptance (concerning rejection), activated areas of the brain known to be sensitive to the feeling of satisfaction. A large study in a sample of people aged from 10 to 30 years old (N = 935) confirmed this conclusion. The presence of peers during simulated driving activates the reward/satisfaction system. Therefore, adolescence can be a happy period but at the same time, it can also be very risky.

The mechanisms in the brain controlling social rewards are not fully understood, but Steinberg (2008) provides a fascinating description of the function of the dopaminergic pathway. The researcher pinpoints that dopamine plays a critical role in the brain's reward system. Therefore, reconfiguration of the dopaminergic system and subtle changes in the number and density of dopamine receptors in the cortical and subcortical areas of the brain seem to be involved in changes that guide reward response during adolescence.

Steinberg also raises another question as to whether adolescents seek rewards and satisfaction because they find it difficult to receive them from the stimuli they receive, the so-called "satisfaction/reward deficiency syndrome". This may also be one of the reasons why adolescents do not engage in activitiesfirmly and consistently, especially when exposed to emotional stress by adults (Finucane *et al.*, 2003; Rivers *et al.*, 2008).

2.7. Fuzzy-Trace Theory

Many approaches assume that adolescents put themselves at risk not because they decide something and they do it but, on the contrary, because they react rather than decide. As we pointed out earlier, this view is supported by Gerrard *et al.* (2008), by Steinberg (2008) socio-emotional approach, and by Casey *et al.* (2008) theory on the functioning of different brain areas. Fuzzy-trace theory also assumes that activity decreases as people move from childhood to adulthood and that inhibition increases respectively (Reyna and Mills, 2007; Rivers *et al.*, 2008). However, according to this theory, inhibition is not just a function of reasoning and analysis; it actually works to conceal thoughts and actions.

Besides, the rational way of making decisions related to exposure to risk assumes that an intuitive path of risk avoidance will guide the individual. This intelligent intuition operates when it comes to simple information and experiences (Reyna and Brainerd, 1995; Rivers *et al.*, 2008). In this article, Rivers and his colleagues studied and documented how emotion interacts with different ways of thinking to drive adolescents to extreme actions and risk. They recorded emotions of stimulation (arousal, calmness), emotions of state (mood), and discrete emotions (sadness, sorrow), (Rivers *et al.*, 2008). A key finding of this theory is that risk-taking in lab conditions has often been found to be analytical and intentional and corresponds to real life.

Thus, adolescents' conscious and reflexive assessment of personal perceptions regarding risks and benefits can often predict their behavior (Reyna and Farley, 2006). Although they may be sorry for action with a negative result, they do not necessarily reject their perceptions about approaching risk and the benefits they enjoy from seeking and experiencing it.

According to traditional economic theories, these decisions could be regarded as "rational", as long as adolescents pursue their goals in accordance with their beliefs and values. However, according to fuzzy trace theory,

this kind of risk-taking is replaced over the years by a simpler approach that focuses on the core value of important decisions and allows adults to avoid major risks.

Experiments concerning risky decision-making have shown that adult behavior can be explained by a specific processing based on the core content of their decision while on the contrary for young adolescents the process relies on a specific processing and analysis of their behavior based on key-words (Mills *et al.*, 1996; Reyna and Ellis, 1994; Reyna, 1996).

3. Risk Theories Focusing on Adults

3.1. A Socio-Psychological and Anthropological Approach

The fact is that in human life there is no such thing as a state of zero risk or absolute security. Thus Beck (2004) describes the modern world as a society of risk, arguing that the way society operates is under the constant threat of danger and human evolution is not a smooth and rational process but arises through conflicts and creative changes. After all, risk makes life interesting and people are endowed with an inherent risk taking propensity (Gartner, 1985; Zimmerman and Saura, 2016).

Several researchers (Ekelund *et al.*, 1999; Fowler *et al.*, 1980; Zuckerman, 1993) have attempted to link individuals' genetic predisposition or biological characteristics to risk taking, while others (Apter, 2001; Kerr, 1991;1999) studied the participation of individuals in high-risk sports through social theories. Finally, other researchers have attempted to interpret the need for risk in the light of personality traits (Diehm and Armatas, 2004). It is important to understand that social institutions have influenced and will always affect our perception of risk. The sociological approach argues that perceptions are socially constructed by institutions, cultural values, and lifestyles (Wildavsky and Dake, 1990).

In order to understand human function within a group of individuals, an important research was carried out, whose findings may be disputed, but they certainly provide some information. Anthropologist Mary Douglas and political scientist Aaron Wildavsky published it in 1982 (Douglas and Wildavsky, 1982).

Their research aimed at understanding the impact of the social group and the group the individual adheres to in relation to the perception of risk. They outlined four lifestyles that they organized into a grid structure. Each lifestyle corresponded to a specific social structure and a particular viewpoint of risk. Basic categorization emphasized how people are restricted and bound by their social roles. Strong commitment to social rules limited individual potentialfor autonomy and negotiation. The greater the restrictions, the more limited the individual choices subject to personal control (Thompson *et al.*, 1990).

An important element of the research is that it has helped to understand the public's reaction to terrorism, in a way that deviates from the model of rational choice. The cultural theory of risk was triggered by observations regarding the social function of individual perceptions of social risk. More recently, researchers have attempted to link the psychometric model to cultural theories. This idea, known as the cultural knowledge of risk, concludes that the dynamics of the psychometric model are the mechanisms through which "group" theories shape risk perception (Kahan *et al.*, 2006).

Continuing, cognitive psychology experts investigated the background of risk perception by individuals and identified a series of heuristics and biases that form risk perception. Psychology researches have tried to understand human behavior when receiving information and how it is processed. They concluded that people mainly use self-learning i.e. the trial and error process.

The psychometric approach has identified many factors that influence individual risk perception, including terror, originality of risk and stigma among others (Tversky and Kahneman, 1974). Research has also shown that risk perception is affected by the recipient's emotional state. Positive emotions lead to optimistic perceptions while negative ones produce a more pessimistic view of risk (Lerner and Keltner, 2000). Moreover, even though risk and profit or benefits tend to be positively correlated in most cases of risky activities in the world, in people's minds and judgmentthey are negatively correlated. This is explained by the influence of mood and feelings (or expectations of a positive outcome) on risk judgments (Finucane *et al.*, 2000; Fischhoff *et al.*, 1978; McDaniels *et al.*, 1997; Mowrer, 1960; Slovic *et al.*, 1991).

Psychometric research has identified a wide range of definitive factors regarding risk perception, grouped into three categories:

- The degree of risk understanding (knowledge or ignorance of risk)
- The degree to which feelings of fear are induced by danger (fear of plane accidents, which is not supported by statistics in relation to road accidents for example). The more terror an activity causes to a person, the higher the perceived risk, thus the more that person will seek to reduce it (Slovic *et al.*, 1982).
- The number of people exposed to risk (who and how many are those who choose to be exposed to danger).

3.2. The Psychopathology Case

For some individuals, engaging in extreme behaviors is based on a mental organization related to some form of psychopathology (Pedinielli *et al.*, 2004). Several research studies associate extreme behaviors with both low self-esteem and high self-esteem (Narnou, 2002).

Jessor's Problem Behavior theory Jessor (1991) is another approach. According to it, risky behaviors are considered to be ways of social divergence. Individuals are more or less vulnerable to the risk of developing behaviors harmful to their health and life.

3.3. Biological Factors and Risk

Risk-taking causes significant changes in the brain's chemical processes. It is believed that "risky" people get addicted to adrenaline very quickly. This process causes a feeling of euphoria. Adrenaline addiction is not officially diagnosed, although it does occur at high levels in severe stress situations.

Research has begun many years ago, in an attempt to identify what motivates some people to engage in lifethreatening activities. Thirty years ago at Delaware University Professor Marvin Zuckerman first developed the theory of risk addiction. Once this phenomenon was recognized, researchers have been examining the various chemical processes in the brain. Addiction-related activities are directly linked to the release of adrenaline, a neurotransmitter that can cause feelings of sudden and intense joy. In fact, dopamine is an active substance that causes adrenaline. For many years the theory that extreme sports participants actually suffered from dopamine deficiency and participated in risky activities that caused the production of the chemical they lacked was prevalent. In 2008 in the Journal of Neuroscience, new data were presented. Researchers from Vanderbilt University in Nashville and Albert Einstein College of Medicine in New York found that people who seek for risk suffer from a limited dopamine disease in their brains. They, therefore, assumed that people who cannot secrete dopamine at normal levels have higher limits when they put themselves at risk.

3.4. Risk at Work

In recent years, competition and financial pressures have required business to reduce costs while simultaneously requiring increased productivity and quality. Many of the companies are trying to use their human resources more effectively. This has led to the creation of risky professions. Various researchers have tried to find out what drives people to choose a risky job.

A person's involvement in risky situations is related to the intensity of the personality trait called "sensation seeking". A 2010 survey that used the Zuckerman's Sensation seeking scale as a tool (Zuckerman, 1994) modified in Greek, employed four sub-scales: "Sensation-Adventure seeking", "Experience seeking", "Non-prohibition", "Boredom avoidance". The research sample comprised of 151 Greek speleologists (males: 55.0%, females: 45.0%). The findings conclude that risk-taking predisposition depends on the gender and the level of experience up to the intermediate level, while age does not appear to play an important role (Papadaki, 2010).

In another study among wind park maintenance technicians, the results show that the factors that determine the perception of risk by the technicians are the perception of personal vulnerability, the seriousness of an accident and the employee's perception of the long-term risks arising from their work. However, in the search for a predictive model of risk perception, only the degree of harm perceived by the employee and the perception of the long-term risks arising from the work were ultimately included. Although discussions show that all maintenance technicians consider their profession to be a high-risk one, the analysis identifies two groups with different perceptions of risk, indicating that risk perception among maintenance technicians is not homogeneous. Finally, there is a statistically significant relationship between marital status and risk perception of maintenance technicians (Gourdouvelis, 2017).

We conclude that gender has a role to play in risk seeking and certainly more research needs to be carried out as also regarding the role family plays in shaping perceptions of risk. Gradual familiarization with risk is a newly identified factor and definitely needs more study. But, understandably, risky jobs and the motivations that drive people to them is an area that requires more research.

4. The Charm of Risk in Outdoor Leisure Activities

Adventure games and extreme sports, despite the risk involved, are particularly attractive, and the experience of engaging in dangerous recreational activities is described as exciting, transcendent, voluptuous (Olivier, 2006). Indeed, the greater the risk, the greater the enjoyment. Specifically, in the field of sport and in particular risky sports or extreme sports, understanding and managing risks needs further research (Sanchez *et al.*, 2010). Extreme sports have been identified as dangerous sporting activities that contain a continuing threat of serious injury that may in some cases even lead to death (Brymer, 2010; Cogan and Brown, 1999; Kerr, 1991).Indeed, these activities usually take place in extreme natural environments that are inherently dangerous (Cogan and Brown, 1999; Goma-i-Freixanet, 1991b). Extreme sports are an important institution of leisure and an integral element of the social organization of modern societies (Higham and Hinch, 2006; Weber, 2001) and are considered an alternative form of tourism, known as Adventure tourism (Adventure Travel Trade Association, 2013; Cazes, 1989).

Extreme sports are a serious leisure activity with six main quality features (Stebbins, 1992).

- perseverance, despite difficult moments that include exhaustion, injuries, and stress,
- the evolution achieved through learning, the personal effort based on specific knowledge, training and skills that will help development,
- resilience to benefits, where athletes seek self-actualization, recreation, self-improvement, emotional integration, expression, social interaction, and the need for "belonging",
- the benefit of pure fun,
- the unique ethics, code of conduct, rules, and standards. Risk, that is, the possibility of injury or even death as
 a result of an uncertain outcome, is a key feature of extreme sports (Lester, 2004; Olivier, 2006; Wagner
 and Houlihan, 1994; Willig, 2008). In sports recreation, the charm of risk-taking, the pleasure of emotional
 excitement and the confrontation of fear are pertinent to all ages. The more frightening an activity, the more
 attractive it becomes. Not only does the fear caused by possible unpleasant consequences deter, but rather
 excites people. In seeking risk, often in its extreme form, the key issue is the testing of boundaries and the
 recognition of individual achievements and individuals are characterized as risk optimizers (Llewellyn et

al., 2008). According to several researchers (Celsi *et al.*, 1993; Rossi, 1993), what people look for in highrisk sports is experiencing strong emotions, adrenaline, and a sense of accomplishment. This satisfies the need for humans to live on the edge (Self *et al.*, 2007). Extreme sports participants seek the challenge of experiencing fear and by taking risks they have the opportunity to develop fear management techniques, overcome stressful situations and effectively meet new challenges beyond their own limits (Ewert, 1988). Adrenaline stems from experiencing intense situations, danger, excitement, and risk experienced by individuals in alert situations (Ewert and Hollenhorst, 1989; Rossi, 1993; Wagner and Houlihan, 1994). Taking the risk, despite the danger of potential loss or potential damage, is an exciting process (DelleFave *et al.*, 2003; Pomfret, 2006; Shoham *et al.*, 2000; Zuckerman, 1994). Galloway and Lopez (1999), argue that the positive correlation between risk and risk-taking is due to the dislike of those involved in boring standard situations and the attempt to avoid monotonous repetitive activities.In extreme adventure sports, where a significant degree of risk is involved, the primary motivation for participation is experiencing strong emotions and adrenaline (Celsi *et al.*, 1993; Rossi, 1993). Self *et al.* (2007), argue that engaging in high-risk sports satisfies the need to live on the edge and that participants seek to discover and transcend their own limits. Extreme sports participants look for the challenge of experiencing fear.

5. Conclusions

Various disciplines have attempted to approach the notion of risk from a sociological, anthropological, psychological point of view and to explain individuals' behavior towards risk. The range of a person's motivation to engage in risky activities is large and complex. It is guided by avoiding boredom and monotony, risk taking and overcoming fear, simple pleasure and relaxation, and excitement, emotion, and intense adrenaline (Kerr and Houge, 2012).

Ryan and Trauer (2005), argue that those involved in high challenge sports and extreme recreation behaviors seek out the role they can play in the adventure themselves. The uncertain outcome, the danger, the risk of injury or even death that characterize extreme sports led (Le Breton, 2000) to argue about the symbolic game with death in high-risk sports. In fact, the higher the levels of risk, the greater the meaning of the effort involved in dealing with fear and achievement. «Homo Exremius» possesses all these features.

The risky type of person, the one seeking danger has always existed and will continue to exist. The motives that drive people to this quest are diverse and comprise of biological and non-biological factors. But the result remains the same. Some people seek risk as an integral part of their lives and not just as a temporary situation. The lack of sufficient literature leads to the conclusion that research needs to be carried out to extract more information on gender, age, and social status differences.

Research on hazardous occupations and people who choose them should also be undertaken. Is it an internal need or external choice because of difficult times? Is transforming into «Homo Extremius» a necessary step to secure survival in the modern world? Is «Homo Extremius» genetically engineered according to Ekelund *et al.* (1999), Fowler *et al.* (1980) and Zuckerman (1993)?

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