

## Examining the adventure traveller behaviour - Personality, motives and socio-demographic factors as determinants for German adventure travel

Sven Gross <sup>1\*</sup>, Manuel Sand <sup>2</sup> and Theo Berger <sup>3</sup>

<sup>1</sup> Institute for Tourism Research, Harz University of Applied Sciences, Wernigerode, Germany. Email: [sgross@hs-harz.de](mailto:sgross@hs-harz.de)

<sup>2</sup> University of Applied Management, Adventure Campus Treuchtlingen, Treuchtlingen, Germany. Email: [manuel.sand@fham.de](mailto:manuel.sand@fham.de)

<sup>3</sup> Harz University of Applied Sciences, Wernigerode, Germany. Email: [tberger@hs-harz.de](mailto:tberger@hs-harz.de)

\*Corresponding author

### Abstract

Adventure tourism has established itself as a concept and a field of research within tourism. While the German tourism market is one of the biggest in the world, no evidence exists on the German adventure traveller. In adventure tourism research in general, there is little evidence on how personality, motives, and socio-demographic factors distinguish the choice for soft and hard adventure activities. Therefore, this quota-based survey among 1,500 German travellers does investigate demographics, motives and personality aspects. A logistic regression analysis is performed to categorize tourists into soft and hard adventure travellers. Gender and age are descriptive characteristics, as well as extraversion and going on adventures to get to know oneself better. This research helps to better understand German hard adventure travellers and enables operators to cater specifically to the needs of the target group

**Keywords:** adventure tourism, personality, motives, hard adventure, Germany, regression analysis

**Citation:** Gross, S., Sand, M. and Berger, T. (2023). Examining the adventure traveller behaviour - Personality, motives and socio-demographic factors as determinants for German adventure travel. *European Journal of Tourism Research* 33, 3307.



© 2023 The Author(s)

This work is licensed under the Creative Commons Attribution 4.0 International (CC BY 4.0). To view a copy of this license, visit <https://creativecommons.org/licenses/by/4.0/>

## 1. Introduction

The global tourism industry is increasingly experiencing a subdivision, i.e. offers for specific interest groups and new forms of tourism are emerging. Among these is the sector of adventure tourism. On the one hand, the rise of adventure tourism reflects megatrends and sub-trends in society as a whole, such as the social trends of values and lifestyles (e.g. individualization and the desire for unique, personalized and authentic experiences). On the other hand, tourists are more and more interested in exploring untouched, unique, and less well-known destinations (Elmahdy, Haukeland, & Fredman, 2017).

Although adventure travel is a growth market and an increasing number of research has been conducted on this topic in recent years (e.g. Janowski, Gardiner, & Kwek, 2021; Rantala, Rokenes, & Valkonen, 2018; Gross & Sand, 2019; Gross & Sand, 2022), research findings tend to be descriptive rather than predictive. Many studies also lack a focus on the psychological underpinnings of decision-making behaviour in the context of adventure tourism. Yet, the importance of studying adventure tourism behaviour from a psychological perspective has been emphasized in the scientific literature for decades. The need to include factors such as personality traits and motives, that influence behaviour in research is pointed out, for example, by Pomfret & Bramwell (2016), Schneider & Vogt (2012) or Sung (2004).

In tourism research, the analysis of the travellers' decision-making process generally aims to obtain different streams of information: (1) traveller characteristics, (2) data on consumption and travel behaviour, and (3) psychological aspects such as needs, motives, personal benefits, expectations, and satisfaction (Fluker & Turner, 2000). The stimulus-organism-response (SOR) theory is a theoretical framework to understand and research tourism behaviour (Laesser *et al.* 2019).

The German travel market is one of the biggest in the world, and Germans are not only frequent travellers but also spend a lot on their trips (Lohmann, Yarar, Sonntag, & Schmücker, 2020). Therefore, German tourists are an interesting target group for destinations and adventure tourism operators seek to attract German adventure travellers. The aim of the study presented in this article was to gain insights into personality traits, motives and socio-demographic factors of German hard and soft adventure tourists. The research presented is guided by six main aims:

- ✓ Examine socio-demographic factors influencing the decision to engage in hard adventure tourism activities.
- ✓ Investigate psychological characteristics influencing the decision of hard adventure tourism activities.
- ✓ Getting a deeper understanding of motives influencing the decision to participate in hard adventure tourism.
- ✓ Identify statistically significant characteristics for hard adventure travellers.
- ✓ Forecast a person's preference for hard adventures.
- ✓ Compare these findings with studies from other countries.
- ✓ Help the tourism industry to better understand the German adventure traveller, so that they can cater for their special needs and expectations.

To meet these research objectives, the study uses data from an online survey. Based on a literature review, various criteria related to travel decision-making were selected. They were then used to identify differences of hard and soft adventure travellers and for predicting adventure tourists' behaviour.

This research helps the industry to identify their customers and to create specific marketing campaigns as well as offers and tours. This piece of research is not only the first to examine the German adventure travel market, but also the first to apply logistic regression models to predict adventure tourism participation. Looking at personality traits and motives identifies special characteristics and needs of travellers. This should gain a broader focus in tourism and adventure tourism research.

## **2. Theoretical background**

Before the results of this study are presented the theoretical aspects of adventure tourism, socio-demographic aspects, personality traits and motives in tourism research are discussed. This will lead to the hypothesis and the methodology.

### *2.1. Adventure tourism*

There are different views on how to define adventure tourism. A literature review showed that the term adventure tourism is used as an "umbrella term" (Rantala *et al.*, 2018, p. 547). There is a bipolar use of the term "from a walk in nature to a flight in space" (Swarbrooke, Beard, Leckie & Pomfret, 2003, p. 4). Janowski *et al.* (2021) stated that from a theoretical perspective 22 dimensions can be elements of adventure tourism. Cheng, Edwards, Darcy, & Redfern (2018) previously showed that there is a progression of adventure tourism definitions from being pre-dominantly focused on physical features such as wilderness and physical activity, towards being increasingly psychological-centred, incorporating elements such as excitement and fear.

While there are different definitions of adventure tourism, they all include an element of risk and uncertainty (Rantala *et al.*, 2018). Sand & Gross (2019) argue that overcoming challenging situations is more important than the risk. Risk is subjective, depending on previous experiences and perceived differently in different situations (Janowski *et al.*, 2021). Overcoming these challenges can support self-development through personal growth, developing skills and self-expression (Haegli & Proebstl-Haider, 2016).

A distinct categorization of activities and their relevance for adventure tourism is not possible due to the subjective perceptions already mentioned. As a result of the diverse debate on the conceptualization of adventure tourism, multiple categorizations, spectrums, or "continuums" exist (Rantala *et al.*, 2018, p. 2). "Several authors have distinguished between different types and levels of adventure activities (...)." (Patterson & Pan, 2007, p. 28) These continua include soft to hard adventure (Hill, 1995; Swarbrooke *et al.*, 2003), original adventures and post-adventures (Varley, 2006), individual to mass tourism adventures, ideal-original to experts-in-charge, philosophical to product-oriented approaches and adventure education to adventure tourism approaches (Rantala *et al.*, 2018).

Although these classifications have been criticized (Janowski *et al.*, 2021), they are widely used in science and practice. Since one of these classifications is of importance to the presented study, the continuum of soft and hard adventure is briefly presented. Soft adventure activities are risky in the subjective perception, but there is a low objective risk associated with them. Little prior knowledge and commitment on the part of the tourist/visitor is required to engage in the activity, and the activity is often accompanied by a guide (e.g. mountain hiking, guided tours). Hard adventure activities, on the other hand, involve significantly greater objective risk and require a high level of skill and commitment on the part of the tourist/visitor (e.g. whitewater rafting, paragliding) (Swarbrooke *et al.*, 2003).

In summary, it can be stated that, on the one hand, an understanding of adventure tourism is necessary for this investigation, on the other hand, (so far) there is no definite answer to the question of what

defines adventure tourism. In this study, building on the existing approaches, respondents were given a definition of how adventure tourism is considered: It either includes outdoor activities such as hiking, mountain biking, climbing, canoeing or paragliding, or consists of vacations with an adventurous character, such as trekking tours or backpacking trips. The activities represent an important motive, as well as the mastering of challenging situations with a certain risk. This was especially necessary as the term adventure tourism (or a corresponding term) is not established in the German language.

## 2.2. The stimulus-organism-response (SOR) theory

Adventure tourism topics are considered by various disciplines in scientific literature. The spectrum of publications is as broad as the number of scientific disciplines that deal with the topic of adventure (Rantala *et al.* 2016). Within economic and tourism sciences, consumer (or rather travel) behaviour research is an important construct. It is widespread in both, science and practice, and is also applied in adventure tourism research.

The connecting link between consumer research and psychology are studies of personality and buying behaviour theories. Despite the fundamental importance of researching motivational and personality aspects in adventure travel, no holistic view of the topic exists in the field of consumer behaviour or psychology. Previous studies use, among others, the 3M model (Schneider and Vogt 2012). Another important approach in consumer behaviour research (in tourism) is the proposal to use psychographic or behavioural variables to formulate preference functions in the decision-making process of travellers, often in conjunction with sociocultural and/or demographic variables. These factors are found in the SOR-model, which expands the basic SR-model. This model is concerned with the question of how a stimulus (S) affects the customer or organism (O) and what response (R) the organism subsequently shows to the stimulus (Woodworth 1929, cited in Laesser *et al.* 2019; Mehrabian and Russell 1974).

It can be assumed that a stimulus (exogenous/interpersonal e.g. marketing actions such as advertisements or endogenous/intrapersonal, e.g. physiological or psychological feeling) is distributed within an individual organism, leading to a (visible) action. In the context of the SOR-model the psychological and sociological determinants form the basis of the explanation. The (not visible) psychological determinants can be separated into activating (emotions, motivations, attitudes) and cognitive processes respectively states (perception, thinking and learning). Additionally, environmental determinants, that can be structured into personal determinants (especially personality, involvement and lifestyle), such as social (especially role/status, reference group/opinion leader and family) and cultural determinants (especially social class, subculture and (regional-)culture, are relevant for consumer behaviour (Foscht *et al.* 2017).

In the scientific literature stimuli are also divided into socio-demographic characteristics (such as age, gender, income) and economic environment (e.g. economy cycle). Socio-demographic characteristics are described as consumer characteristics or personal factors, that lay within the consumer and that influence the purchase decision. Ultimately these attributes are also considered as context variables. Context variables describe under which conditions the processing of the stimulus (information processing) takes place in the black box (Freyer 2011). "Today, scholars consider this approach a paradigm, that is, a universally applicable theoretical framework" (Laesser *et al.* 2019). Nevertheless, this approach has been criticized, which led to modifications and extensions. One such extension is the SOMOAR-model which expands the SOR-model by the MOA (motivation-opportunity-ability;

originally proposed by Ölander and Thøgersen in 1995) approach and adapts the concept to describe the decision-making process, especially of travel decisions (Laesser et al. 2019)<sup>1</sup>.

Today's marketing is based on the idea of knowing one's customer, prognosticating her/his needs, and fulfilling them. Variables of the decision making process are essential to better understand the customers' needs. In recent years, studies focusing on adventure tourist profiles can increasingly be found in the literature. For example, Loetter, Geldenhuys, & Potgieter (2012) try to identify the profile of adventure tourists in Pretoria, while Rojo-Ramos, Vidal-Espinoza, Palacios-Cartagena, Galán-Arroyo, Manzano-Redondo, Gómez-Campos, & José Carmelo Adsuar (2021) focus on adventure tourists in Spain. Mohamed, Afandi, Ramachandran, Shuib, & Kunasekaran (2018) determined the characteristics of visitors to Kampar (Malaysia) from an adventure tourism perspective (see Table 1).

**Table 1.** Overview of studies examining adventure tourists (selection)

Authors	Year	Main content	Survey area	Survey design
Loetter et al.	2012	compiling demographic profile of adventure tourists	Pretoria, South Africa	self-completing questionnaire, nonprobability sampling in the form of quota and convenience sampling, n = 234
Mohamed et al.	2018	profile and visit characteristics	Kampar, Malaysia	domestic visitors who participated in adventure tourism activities, on-site data, n = 102
McComb & Beckmann	2019	quantitative analysis of demographic and attitudinal indicators; cluster analysis to identify response patterns and their relation to personality attributes	Australia and USA	2,514 international travellers from USA (1,239) and Australia (1,275), online survey
Rojo-Ramos et al.	2021	socio-demographic characteristics and means of transport	Spain	National Institute of Statistics, 380 national and international tourists
Schneider & Vogt	2012	demographic characteristics, differences in trait antecedents of hard and soft adventure travellers; hierarchical regressions to explore the relationships between personality traits and adventure travel propensity	USA	self-administered questionnaires were mailed to a random sample of National Geographic Adventure magazine subscribers, n = 339
Sung	2004	segmenting of adventure travellers (cluster analysis, six subgroups); traveller characteristics, trip-related factors in the decision-making process, perception of adventure travel	USA	60,000 adventure travellers from the Adventure Club of North America; stratified random sampling method, n = 892
Viren, Murray, Brown, & Beckmann	2017	Travel experience and intentions, personality characteristics, definition of adventure	USA	Systematic random sample of 8,000 Outside magazine subscribers, selected and stratified for gender, n = 745

Note: The studies by Viren et al. and McComb & Beckmann were supported by Adventure Travel Trade Association – previously there were other studies involving Adventure Travel Trade Association (2010; 2013).

<sup>1</sup> More recent additions can be found in Jacoby (2000) and Kim and Lennon (2013). Jacoby (2000) introduced an integrative SOR-frame with cognitive and affective systems, that includes all prior experiences affecting the long-term memory. Kim and Lennon (2013) expand the SOR-model by internal and external sources of information as stimuli, that influence the purchase intention (reaction) through cognition and emotion of the consumer (organism).

### 2.3. Socio-demographic factors

Socio-demographic characteristics are described as consumer characteristics or personal factors, that lay within the consumer and that influence the purchase decision. Ultimately these attributes are also considered as context variables (Freyer, 2011). Relevant socio-demographic factors or adventure travel are discussed in the following.

Firstly, gender is an important socio-demographic factor for hard adventure tourism participation. Sung (2004) found that adventure tourists (in the USA) are mainly men (68%) who often prefer hard adventures, whereas women have a higher propensity to engage in soft adventures. "From among six market segments, 'general enthusiasts' tend to be male and to prefer hard adventure activities, and 'family vacationers' are predominantly male and with young children and well-established professional careers. Women dominate the smallest segment, the 'soft moderates', which mainly comprise middle-aged adventure tourists who prefer soft, nature-based adventure activities." (Pomfret & Bramwell, 2016, p. 1450) Research by the Adventure Travel Trade Association (2010, 2013) also found gender differences: 57% of adventure tourists are male and there are no major differences between hard and soft adventure participation, although females are slightly more attracted to soft adventures. While the Adventure Travel Trade Association indicated a changing trend, more recent studies also show higher proportions among men, such as McComb & Beckmann (2019) or Viren *et al.* (2017).

Secondly, age is an important factor and the younger an adventure tourist the more likely he or she will undertake hard adventure activities. Adventure tourists are younger than other tourist types (Schneider & Vogt, 2012; Loetter *et al.*, 2012). Especially when it comes to hard adventure tourism younger age groups between 20 and 40 prevail. Yet participation among an older group, namely the 'baby boomers', is growing (Adventure Travel Trade Association, 2010, 2013; Patterson & Pan, 2007).

Adventure tourists have different educational backgrounds, but are mostly higher educated (Schneider & Vogt, 2012; Sung, 2004). This also results in an above average gross netto income (Schneider & Vogt, 2012, Sung, 2004).

### 2.4. Personality traits of adventure tourists

The spectrum of publications in adventure tourism is as broad as the number of scientific disciplines that deal with the topic of adventure (Rantala *et al.*, 2018). Within economic and tourism sciences, consumer (or rather travel) behaviour research is an important construct. It is widespread in both, science and practice, and is also applied in adventure tourism research.

The connecting link between consumer research and psychology are studies of personality and buying behaviour theories. Determining personality traits of different customer groups has gained importance in consumer behaviour research (Kwon & Park, 2016). Personality traits can not only help to segment customer groups and to identify target groups, but to specially market and cater to relevant market segments (Mowen, 2000; Kwon & Park, 2016). When it comes to tourism research correlations exist between personality traits and the type of the trip, travel motives and preferred activities (Alves *et al.*, 2020; Kwon & Park, 2016; Schneider & Vogt, 2012).

Despite the fundamental importance of researching motivational and personality aspects in adventure travel, no holistic view of the topic exists in the field of consumer behaviour or psychology. Previous studies use, among others, the 3M model (Schneider & Vogt, 2012). This model "integrates diverse psychological theories and consumer behaviour constructs into a coherent general theory of motivation and personality that more parsimoniously explains a broad set of phenomena" (Mowen, 2000, p. 6).

Personality traits are characteristics that determine a person and are said to be constant over time. Schneider & Vogt (2012) tested for eight personality aspects in the adventure tourism context using the 3M model. They analysed how decisive the personality traits are for participating in either soft or hard adventure tourism. Interest in cultural experiences, need for arousal, and need for material resources were significant predictors of adventure tourism participants for the hard traveller. Need for learning and openness to experiences were also significantly more important to hard adventure traveller compared to soft adventure traveller.

While Schneider & Vogt (2012) used the 3M model, this research focuses on the Big 5 personality traits. They consist of five dimensions that are said to be the essential traits of a person's personality, referred to as the big five. They consist of the five dimensions: openness to experience (inventive/curious vs. consistent/cautious); conscientiousness (efficient/organized vs. easy-going/careless); extraversion (outgoing/energetic vs. solitary/reserved); agreeableness (friendly/compassionate vs. analytical/detached); and neuroticism (sensitive/nervous vs. secure/confident) (De Raad, 2000). The big five, although sometimes criticized for their limited scope within the personality psychology debate (Boyle, 2008), are found to be appropriate in this study to analyse general criteria of participants' personalities. The big 5 investigate five important dimensions of personality that are essential for identifying different characters. They are suitable in studies that do not primarily focus on personality and that cannot include more extensive tools of measurement (Spoerrle & Bekk, 2014). As Schneider & Vogt (2012) found that extroversion and openness to new experiences were characteristic for hard adventure travellers this study focuses on these two personality traits.

The SIMP questionnaire by Woods & Hampson (2005) used in this study in its German version (Spoerrle & Bekk, 2014) is verified and tested. It consists of five questions, where the subject is asked to rate himself in terms of the five dimensions of the big five and their opposing attributes. Pomfret & Bramwell (2016) found in their literature review that motives change with experience. The more experienced the adventure tourist, the more important are intrinsic motives. McEwan, Boudreau, Curran, & Rhodes (2019) performed a meta-analysis on personality traits of high-risk sports participants. They found strong effect sizes for participating in adventure activities for sensation seeking, extraversion, and impulsivity. Whereas neuroticism, telic dominance, and sensitivity to punishment are traits that prevent people from participating in adventure activities. McEwan and colleagues found no differences in terms of gender or in regard to openness.

### *2.5. Motives of adventure tourists*

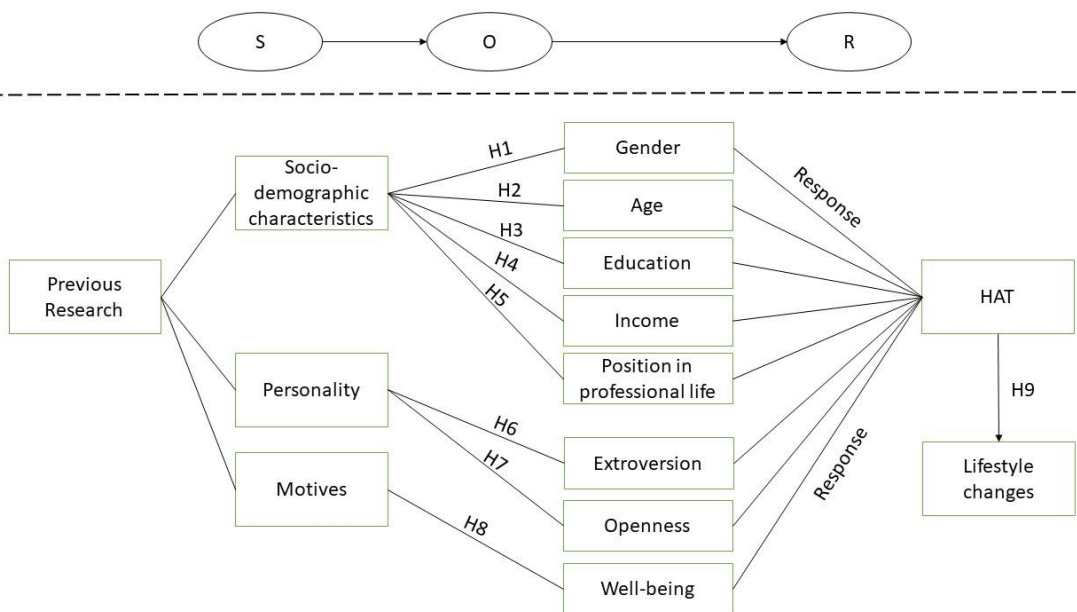
Several theories and constructs try to explain why people participate in adventure activities and especially in hard adventurous activities with a high potential risk (Pomfret & Bramwell, 2016). The topic is examined from a sociological background (Breivik, 2010) as well as from a psychological perspective (Brymer & Houge Mackenzie, 2017). Psychological constructs such as edgework, reversal theory or sensation seeking have been used to explain the participation in extreme sports and risky adventurous activities (Brymer & Houge Mackenzie, 2017). Holm, Lugosi, Croes, & Torres (2017) examined whether risk taking enhances subjective well-being and found that controlling the risk and mastering the situation has the biggest effect. This supports previous research from Kerr & Houge Mackenzie (2014) who found that maintaining control and mastery were important motives. Motives focusing solely on risk and thrill have therefore been criticized (Houge Mackenzie & Hodge, 2020), not only because risk seems not to be the key motive for extreme sports athletes, but also because they do not explain female adventure tourists' motives (Pomfret & Bramwell, 2016).

A positive psychology approach is suggested, resulting in a conceptual framework for adventure and subjective well-being (Houge Mackenzie & Hodge, 2020). Subjective well-being is a construct also used within leisure (Mansfield, Daykin, & Kay, 2020) and tourism research (Farkić & Taylor, 2019). Adventure tourism also benefits from the positive effects on well-being by blue (Britton, Kindermann, Domegan, & Carlin, 2020) and green spaces (Rogerson, Wood, Pretty, Schoenmakers, Bloomfield, & Barton, 2020), especially when combined with physical activity.

Currently different effects of adventure tourism on well-being are being discussed (Sand & Gross, 2019). They include aspects such as liminality (Houge Mackenzie & Goodnow, 2020), relaxation (Buckley, 2020), self-efficacy (Mutz & Mueller, 2016), resilience (Robertson, Graves, Bobilya, Murdock, Brotherton, & Hunter, 2020), awe (Piff, Dietze, Feinberg, Stancato & Keltner, 2015) and flow (Boudreau, Houge Mackenzie, & Hodge, 2020). Flow is an essential aspect of adventure activities and describe a state where you are fully absorbed by the activity, losing fear, negative thoughts, and a feeling for time (Houge Mackenzie, Hodge & Boyes, 2011). Sand, May & Gross (2019) tried to categorize the different positive effects of adventure tourism on well-being based on the framework by Houge Mackenzie & Hodge (2020). In their pilot study they performed a qualitative analysis of all abstracts from the six International Adventure Conferences. Drawn from the analysis six categories emerged: liminality, space and place, identity, existential self-positioning, psyche and cognitive skills. To prove the importance of the six categories, a research instrument consisting of 16 items on the motives for the categories was created and included in this research.

### 2.6. Hypotheses

To test the importance of these aspects for German adventure travellers the following is hypothesised, based on previous research by Scheider & Vogt (2012). Figure 1 illustrates the research framework of this study based on the S-O-R model and the hypotheses.



**Figure 1.** Research framework based on the S-O-R model



The following hypotheses are tested:

*Hypothesis 1: Men are more likely to participate in "hard" adventure tourism activities than women*

*Hypothesis 2: The younger the respondents, the more likely they are to participate in "hard" adventure tourism activities*

*Hypothesis 3: The higher the level of education of the people in the sample, the higher the willingness to participate in "hard" adventure tourism activities*

*Hypothesis 4: The higher a person's (annual) income of the people in the sample, the more interested she/he is in carrying out "hard" adventure tourism activities*

*Hypothesis 5: The position in professional life of the people in the sample has no influence on the interest in carrying out "hard" adventure tourism activities.*

*Hypothesis 6: Hard adventure travellers are more outgoing/energetic (extroversion).*

*Hypothesis 7: Hard adventure travellers are more open to new experiences.*

*Hypothesis 8: Well-being is an essential motive for Hard adventure travellers.*

*Hypothesis 9: HATs are more likely to change their lifestyles after their experiences.*

### **3. Methods**

The data were collected through an online survey (n = 1,500). In order to test the derived working hypotheses, a quantitative methodical approach is applied. More concretely, a logistic regression framework is applied to assess statistical significance of various independent variables. The independent variables are built, based on the online survey. In doing so, statistically significant characteristics of people who are categorized as hard adventurers are identified. Furthermore, based on the fitted model, a prediction if someone belongs to the category of hard adventurers by assessing the relevant characteristics of each person is able to do.

The population includes German-speaking internet users between 18 and 75 years, living in private households, who undertook a vacation trip with at least one overnight stay within the last two years. Due to the Corona pandemic, the period was deliberately extended to two years (instead of one) to include participants who have not travelled or were unable to travel due to Covid-19 in 2020. The sample is representative of German internet users – subject to the restrictions of a quota-based online sample described in the limitations. The characteristics used to construct the sample were age, gender, and origin (Nielsen regions).

The survey consists of 39 questions, 21 of them were asked to all participants and 13 to those who had previously participated in adventure tourism activities. Five questions were directed at participants who had not been on an adventure trip but were interested in adventure travel. The survey was conducted by myonlinepanel Ltd. Initially, a soft launch sample was created, a random sample was drawn from the contractor's German panel (2020: n = approx. 60,000) according to the distribution from the quota plan. After the data check, the sample was drawn from the panel for the full launch according to the distribution from the quota plan. A total of 10,054 invitation e-mails were sent out.

Prior to the online survey, a pretest was conducted with selected experts. The soft launch took place on November 20 and the main survey from November 24 to December 3, 2020. The median time taken to complete the questionnaire was 15.3 min.

The data analysis was carried out using the statistics programme SPSS 27. In addition to simple frequency illustrations, mean values and the respective standard deviation (SD, statistical measure for the dispersion of a characteristic around the centre of a distribution) are presented, as well as regression

models and a forecast. In order to identify statistically significant characteristics of the assessed survey participants that belong to hard and soft adventure travellers, a binary probit approach is applied. The probit approach can be described as a regression approach, which is applicable if the dependent variable is binary, i.e. hard and soft adventure traveller. The applied framework is given as follows:

$$P(y_i = 1) = \phi(\beta_0 + \beta^T x_i + u_i) \quad (1)$$

Here  $y_i$  is a binary variable that is 0 for soft adventure and 1 for hard adventure traveller and  $x_i$  is the vector of independent variables of person  $i$ , i.e. all characteristics of person  $i$ .  $\beta_0$  is a constant,  $\beta^T$  describes the respective vector of estimated coefficients and  $u_i$  the random disturbances. All parameters are estimated via the Maximum Likelihood method. In this regression setting, we are able to study the impact of all characteristics of person  $i$  on the decision, if the person belongs to category hard and soft adventure traveller. Appendix 1 gives an overview of the applied independent variables and their respective scales.

To the authors' knowledge no logistic regression analysis has been performed previously to examine the socio-demographic factors, personality traits and motives influencing the decision to engage in adventure tourism activities. Although there are several papers that apply regressions (Bichler & Peters, 2020; Schneider & Vogt, 2012) and ANOVA assessments (Japutra & Hossain, 2021; Mason, Gos, & Moretti, 2016), in this contribution an innovative logistic regression approach is applied, and competing socio-demographic factors as determinants are assessed and include the information into the models.

#### 4. Results

Selected findings are presented with a focus on the results relevant to the analysis of differences in the variables influencing the categorization of hard adventure or soft adventure travellers. The activities were divided into soft and hard adventure activities according to the classification by the Adventure Travel Trade Association (McComb & Beckmann, 2019).

Due to the fact, that the statistical assessment is based on the decision whether a survey participant is categorized as hard or soft adventure traveller, a competing classification procedures is applied to achieve robust results. Specifically, a person is characterized as hard adventure travellers when more than one activity is observed which is labelled as hard adventure. Specifically, four different scenarios are studied, i.e. a person is characterized as hard adventure travellers if more than 1, 2, 3 or 4 activities which are labelled as hard adventures are observed. In doing so, it is avoided that survey participants who naturally belong to the group of soft adventurers, wrongly get labelled as hard adventures because of 1, 2 or 3 hard activities. Also, for the sake of robustness, the classification into hard and soft activities proposed by Schneider & Vogt (2012) and Adventure Travel Trade Association (2010, 2013) is applied. The focus on hard adventure was chosen because it was not possible to study both target groups and the hard activities can be regarded as adventure tourism in the narrower sense.

##### 4.1. Profiling hard adventure tourists

It is noticeable that the respondents had already practised soft adventure activities such as hiking, mountain hiking and camping in nature as part of their holidays (see Table 2). The remaining soft adventure activities had been carried out by about 20-30% of the respondents at least once while traveling. The same percentage can also be found for most of the hard adventure activities, but mountain biking takes the highest share with one third having mountain biked while on holiday before. The potential for further adventure activities seems to be high. It is noticeable that there is a (comparatively) high potential for participants to perform both soft and hard adventure activities in the

future. Almost one third to one half of the respondents are interested in soft adventure activities, especially in safaris, canoeing, sailing trips, stand-up paddling, trekking and backpacking. The percentages are slightly lower for hard adventure activities, they mostly range between 30% and 36%.

**Table 2.** Interest in and participation in adventure activities while traveling among the respondents (n = 1,500)

	I have participated (at least once)	I have not participated, but I am interested	Have not participated and I am not interested
<b>Hard adventure</b>			
Paragliding	6.8%	36.1%	57.1%
Skydiving	7.3%	33.5%	59.3%
Rafting	15.1%	36.3%	48.6%
Rock climbing	15.7%	21.3%	63.0%
(Scuba) diving	22.1%	36.2%	41.7%
Kayaking	25.0%	30.5%	44.5%
Mountainbiking	33.3%	19.4%	47.3%
<b>Soft adventure</b>			
Bivouacing	13.9%	26.9%	59.1%
Canoeing	14.6%	36.8%	48.6%
SUP	15.1%	32.3%	52.6%
Sailing	17.3%	36.7%	46.0%
(Fly-) Fishing	18.3%	19.9%	61.8%
Safaris	19.1%	53.0%	27.9%
Ski touring	20.5%	22.7%	56.8%
Trekking	21.5%	31.6%	46.9%
Backpacking	24.3%	31.2%	44.5%
Horseback riding	33.2%	19.5%	47.3%
High Ropes Course	36.1%	23.0%	40.9%
Camping in Nature	54.0%	19.7%	26.3%
Mountain hiking	54.0%	21.9%	24.1%
Hiking	76.3%	13.0%	10.7%

Note: The categorisation of the different activities into hard and soft was based on Schneider & Vogt (2012) and Adventure Travel Trade Association (2010, 2013).

In terms of extraversion the majority of German adventure tourists are more outgoing and energetic (see Table 3). They are rather friendly and compassionate than critical and rational (agreeableness), rather sensitive/nervous than resilient/confident (neuroticism), to a strong degree efficient/organized and less extravagant and careless (conscientiousness), not as curious as one would assume, and rather consistent/cautious (openness to experience).

Positive psychology orientated approaches and well-being are increasingly used to explain adventure travel motives. This is supported by the findings in this study. It is noticeable that the respondents seek a compensation to everyday life during their adventure trips, to evolve at ease and to enjoy a deceleration outdoors. Other important motives are natural phenomena and beautiful landscapes that convey a feeling of awe, (adventure) travel serves as personal enrichment through experience and knowledge and getting in touch with oneself ("harmony with myself") (see Table 4).

**Table 3.** Personality traits of the respondents according to the SIMP scale (n = 1,500)

Scale levels	1	2	3	4	5	6	7	8	9	
outgoing/ energetic	6.5%	12.8%	16.4%	10.9%	15.5%	12.3%	13.1%	7.7%	4.7%	solitary/ reserved
critical/ rational	4.0%	8.2%	11.3%	12.9%	18.2%	11.1%	18.1%	11.3%	4.9%	friendly/ compassionate
sensitive/ nervous	3.8%	10.1%	17.5%	13.2%	19.9%	8.7%	13.4%	9.5%	3.9%	resilient/ confident
efficient/ organized	8.8%	18.5%	21.3%	11.7%	14.5%	9.8%	8.6%	4.1%	2.6%	extravagant/ careless
inventive/ curious	4.6%	8.5%	13.1%	9.3%	16.3%	11.3%	15.9%	13.8%	7.3%	consistent/ cautious

**Table 4.** Adventure tourism well-being motives among respondents (n = 1,365)

Motives	Mean (sd)	Motives	Mean (sd)
Compensation to everyday life	1.71 (0.84)	Developing myself	1.74 (0.82)
Decelerate best outdoors	1.81 (0.92)	Natural phenomena and beautiful landscapes give a feeling of awe and a sense of belonging	1.83 (0.92)
Personal enrichment through experiences and knowledge	1.85 (0.89)	Outdoors I am in touch with myself	1.88 (0.89)
Bond with nature and culture	2.00 (0.94)	Natural phenomena and beautiful landscapes give feeling of awe	2.04 (1.05)
Great joy from mastering challenging situations	2.22 (1.04)	Share experiences with likeminded people	2.26 (1.06)
After mastering a challenging situation, I feel like I can do anything	2.26 (1.02)	Master/live through challenging situations	2.28 (0.96)
Enjoy being accompanied by likeminded people	2.32 (1.09)	Being completely absorbed in challenging situations gives strength	2.36 (1.05)
Get to know myself better	2.52 (1.14)	Adventures in a constant fellowship	2.56 (1.12)

Scale: 1 = fully applies; 2 = rather applies; 3= neither; 4 = does rather not apply; 5 = does not apply at all

The experiences gained during an adventure trip are held accountable for lifestyle changes. About four in ten report that they spent more time in nature/outdoors (42.9%) and/or their interest in food and cuisine has been awakened (39.9%) after their last adventure holiday. Respondents also reported changed attitudes toward cultures and places (36.8%) and interest in healthy behaviours (31.1%) (see Table 5).

#### 4.2. Influence of variables on predicting hard adventure travel

The empirical results of the applied logistic regression provide interesting insights into the characteristics of tourists that were identified as hard adventure travellers. To assess the robustness of the findings, several definitions of hard adventure travellers are assessed, namely four different scenarios are studied: A tourist is categorized as hard adventure travellers if more than 1, 2, 3 or 4 hard activities are observed. The results are given in Table 6.

**Table 5.** Lifestyle changes through adventure travel experience (n = 1,365, number of respondents)

Lifestyle changes	Yes	No	I don't know
Spent more time in nature/outdoors again	42.9%	54.0%	3.1%
More interest in food and cuisine	39.9%	56.7%	3.4%
Changed attitude towards cultures/places	36.8%	59.8%	3.4%
More interest in healthy behaviours	31.1%	64.9%	4.0%
Beginning a more sustainable lifestyle	18.4%	77.7%	3.9%
Start a new leisure activity at home	11.8%	85.6%	2.6%
Money donated to a charity or good cause	11.6%	85.3%	3.1%
Learned a new language	11.4%	85.2%	3.4%
Volunteering started	7.4%	89.9%	2.7%

**Table 6.** Determinants of hard adventure tourists: Logistic Regression

Category	Independent Variable	Model 1 >1 Hard	Model 2 >2 Hard	Model 3 >3 Hard	Model 4 >4 Hard
<b>Demographic</b>	Gender	-0.60**	-0.61**	-0.55**	-0.57
	Age	-0.31**	-0.26**	-0.24**	-0.22
	Occupation	-0.06	-0.02	0.02	0.13
	Income	0.07*	0.05	0.13*	0.18*
<b>Social Personality</b>	Extroversion	-0.07**	-0.09**	-0.10*	-0.20**
	Agreeableness	-0.07*	-0.03	-0.06	-0.03
	Neuroticism	-0.00	0.01	0.02	0.02
	Conscientiousness	0.04	0.02	0.05	0.09
	Openness to experience	0.06	0.02	0.01	-0.00
<b>Motives</b>	Liminality	0.07	0.12	0.33	0.54**
	Self-development	0.20*	0.13	0.30	0.74**
	Enrichment	-0.10	0.06	-0.13	0.10
	Strength	-0.19*	-0.28*	-0.30	-0.24
	Deceleration	0.08	-0.03	0.04	-0.26
	Nature/culture	-0.07	-0.12	0.01	0.07
	Like-minded nature	0.05	0.02	-0.04	-0.13
	Like-minded activities	-0.22*	-0.04	-0.03	0.06
	Fellowship	0.17*	0.14	0.14	0.18
	Know Myself	-0.13	-0.20**	-0.47**	-0.68**
	Awe	0.09	0.07	0.09	0.34
	Sense of belonging	0.04	0.09	0.13	0.02
	Harmony	-0.16	-0.18	-0.19	-0.42
Challenge	-0.18	-0.22	-0.26	0.07	
Coping	-0.15	-0.06	-0.02	-0.52*	

Category	Independent Variable	Model 1 >1 Hard	Model 2 >2 Hard	Model 3 >3 Hard	Model 4 >4 Hard
	Mastering	0.13	0.14	0.06	-0.07
<b>Lifestyle changes</b>	Leisure	-0.19	0.01	0.02	0.40
	Attitude	0.06	-0.12	0.10	0.30
	Donate	-0.16	-0.37	-0.45	-0.81*
	Language	0.10	-0.07	-0.34	-0.48
	Lifestyle	0.15	-0.19	0.09	0.06
	Nutrition	-0.37**	-0.20	-0.12	-0.12
	Health	-0.25	-0.10	-0.02	0.19
	Volunteering	-0.05	0.22	0.01	-0.42
	Time	-0.05	0.06	0.26	0.39
<b>Constant</b>		3.56**	2.58**	0.74	-0.71
<b>-2 Log-Likelihood</b>		1544.9	1184.24	767.16	407.87
<b>Cox &amp; Snell R<sup>2</sup></b>		0.162	0.108	0.083	0.072

Notes: \*\*\*, \*\* and \* denotes significance level at the 5%, 1% and < 0.1% level or \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Gender and Age describe statistically significant characteristics of travellers who prefer hard adventures. In this vein, being female (Gender) is characterized by a negative causality on the probability of belonging to hard adventure traveller. Also, increasing age (Age) does have a negative impact on belonging to hard adventure travellers. Furthermore, if a person describes himself or herself as outgoing/energetic (Extroversion) the probability of being categorized as hard adventure travellers significantly increases. Also, if a person states that he or she likes to go on adventures to get to know himself/herself better (Know myself), the probability of being categorized as hard adventure travellers significantly increases, too.

Interestingly, a higher income increases the probability of belonging to hard adventure traveller, this impact, however, is only significant at the 5%-level for 3 out of 4 models.

#### 4.3. Measurement of Prediction

The impact of the results is demonstrated, and the quality of the estimated model is assessed, in terms of prediction accuracy. Based on the applied logistic regression-framework, exclusively the independent variables are applied as presented in Table 6 to categorize each participant as hard adventure or soft adventure traveller. Therefore, this categorization exercise adds to existing regression assessments as provided by Schneider & Vogt (2012) and Bichler & Peters (2020) and indicates novel insights into the prediction of each participant category, based on his or her provided information.

Table 6 gives the results of the generated predictions. The application of the fitted model provides empirical evidence that it is possible to anticipate a person's category with respect to hard adventure or no hard adventure traveller. Due to the fact that the focus is exclusively on the provided information about each person, the predicted category can then be compared to the observed category of every traveller. Here, the accuracy of the model is provided for the scenario, that a person gets categorized as hard adventure traveller, if more than two hard adventures are observed. The overall accuracy of the model shows a correctly categorization of 86.6% of the participants by exclusively assessing the

answered questions. Specifically, the precision for the correctly classified soft adventure traveller participants is about 95.2% and the correctly categorized persons who belong to hard adventure traveller is about 49.2%.

**Table 6.** Confusion matrix for soft and hard adventure traveller

		Predicted		Accuracy (in %)
		Soft	Hard	
Realized	Soft	1048	53	95.2
	Hard	134	130	49.2
Total				86.3

Note: A person is defined as hard adventure traveller if she/he has conducted more than 2 activities that are characterized as hard adventure according to Schneider & Vogt, 2012 and Adventure Travel Trade Association, 2010, 2013.

Having in mind, that the underlying data are collected via an online-survey, similar target groups in the context of online-booking and online-marketing are expected. Therefore, this approach indicates a fruitful approach for travel agencies that are interested in personalized marketing. Interestingly, to categorize customers into hard adventure or soft adventure traveller, this results suggest that Gender and Age describe the relevant socio-economic information that is necessary. If possible, individual motives, indicated by determinants “Extroversion” and “Know Myself” should be added. Thus, not the full questionnaire is needed in order to anticipate a customer’s category.

## 5. Discussion

The distinction between soft and hard adventure tourists has proven useful to practitioners. This paper builds on this segmentation to examine differences between both adventure travellers and, for the first time, uses logistic regression models for predictions. Significant differences in characteristics are found between the two adventure tourist groups, which are summarised in Table 7 in relation to the hypotheses analysed and discussed in more detail below. The findings bring distinctness into this topic and partially disparate previous results presented in the literature review.

**Table 7.** Results overview of all hypotheses analysed (see section 2.6)

Hypotheses	Result
<i>Hypotheses 1, 2, 6 and 8</i>	Accepted as they are significant predictors in our regression model
<i>Hypotheses 3, 4, 5, 7 and 9</i>	Rejected, as they were not significant in the regression model

Firstly, this study underpins previous findings from other countries, that hard adventures are dominantly performed by men and therefore the male sex is a predictor for hard adventure travellers (Sung 2004; Pomfret & Bramwell 2016; McComb & Beckmann 2019; Viren *et al.* 2017). To the authors' knowledge, this is the first time that a logistic regression has been performed with different variables for (soft and hard) adventure travellers – and with this, the (negative) influence of gender on the performance of hard adventure activities can be supported statistically significant. Previous studies, especially in the USA and Australia, have relied on purely descriptive statements (frequencies). Due to this proof, hypothesis 1 can be accepted.

Adventure tourists are often found to be younger (compared to other tourist types), although participation among an older group, namely the ‘baby boomers’, is growing (Adventure Travel Trade Association, 2010, 2013; Patterson & Pan, 2007). Especially when it comes to hard adventures the number

of young travellers in the US is explicitly higher (Schneider & Vogt, 2012). This can be confirmed for German adventure travellers in this study – increasing age has a negative effect on the affiliation to hard adventure traveller. Therefore, hypothesis 2 can be accepted.

Adventure tourists have different educational backgrounds, occupational status, and economic status. American hard adventure tourists are comparatively highly educated (78% of the HATs and 61% of the SATs), more likely to have a full-time job (SAT: 56%, HAT: 67%) and a higher income (\$100,000 and more: 46% SAT and 56% HAT, more than \$250,000 12% HAT and 6% SAT) (Schneider & Vogt, 2012). In our regression models, no significant effect was found for the occupation and not for the income in all model specifications – especially the latter seems to have a slight positive influence on the German hard adventure traveller affiliation. This is where the findings on German adventure tourists differ from those in the U.S. Therefore, the hypotheses 3, 4 and 5 must be rejected.

The results show that outgoing people are more likely to participate in hard adventure tourism activities. Extraversion was also found to be an important personality trait for adventure activities by McEwan *et al.* (2019). Schneider & Vogt (2012) also found that American hard adventure travellers were less introvert than soft adventure travellers. Openness to new experiences was not a predictor for hard adventure travel and in comparison to Schneider & Vogt (2012), German adventurer travellers were less open for new experiences. This suggests that German adventure travellers are not as inventive and curious as one would assume. Instead, they look for consistent experiences in familiar settings. This finding shows a major difference between American and German adventure travellers, that might be explained by cultural differences. Based on the findings hypothesis 6 is accepted, while hypothesis 7 is rejected.

While all well-being related motives are important to the interviewed adventure travellers, being accompanied by others was less important. Cultural experiences are less important for the German adventure traveller, which was an important motive for American adventure travellers in Schneider & Voigt's research (2012). The most important motives in this study are liminality, deceleration, self-development, awe and a sense of belonging. This emphasises the importance of eudemonic well-being (Pomfret & Bramwell, 2016; Brymer & Houge Mackenzie, 2017; Houge Mackenzie *et al.*, 2019) and demonstrates that thrill and sensation seeking are not essential motives for adventure travellers, confirming the work by Viren *et al.* (2017). When it comes to the classification between hard and soft adventure travellers it shows, that hard adventure travellers want to get to know themselves better through the adventure experience. Therefore, hypothesis 8 can be accepted.

While this study gives first insights into the German adventure tourism market and profiles the German adventurer, it will be interesting to compare these findings with other countries around the world. This will help to better understand the adventure traveller in general and in different regions and segments.

## **6. Conclusion**

### *6.1. Theoretical implications*

While contributions on adventure tourism have so far largely focused on determining factors influencing the travel decision and remained descriptive, this study combines different aspects and analyses them using logistic regression. Hereby, the impact of socio-demographic, personal, and motivational aspects for the travel decision was tested in order to measure statistical significance. Previously identified significant factors could thus be statistically confirmed or rejected for the first time.



This research examines travel motives and focuses on well-being aspects of adventure travel. All examined aspects based on the findings by Sand *et al.* (2019) are important motives for adventure travel. These aspects and well-being motives should be considered in future research on adventure travel.

Furthermore, an estimated regression framework was applied to demonstrate how the results can be used to identify a person who can be characterized as hard adventure traveller. Based on the provided questionnaire, a forecasting-assessment is provided and the accuracy of the estimated model is demonstrated. The results are highly relevant for customized services for tourists, such as marketing, product development and customer experience.

### *6.2. Managerial implications*

A better understanding of the factors influencing the travel decision of adventure tourists is important for the marketing and management of destinations and providers. The results of this study can therefore help create more differentiated marketing efforts for tourist types that differ not only by socio-demographic variables, but also by affinities for more "extroversion" (outgoing/energetic) and "wanting to get to know each other better." Examples range from micro adventures to extended time off ("sabbatical") to get to know themselves and the outdoors better. Destination management organizations can take this into account in product development and marketing.

In product development, for example, special trips can be offered for people who want to get to know themselves better. Tours can include special activities with guides, fellow travellers, or other adventurers to reflect the experiences made during the adventure holiday. This can be achieved, through conversations, or with the help of (video) diaries or blog entries.

Outgoing people are talkative, energetic, enthusiastic and active. They like to meet new people, talk to natives and fellow travellers and discuss their experiences. At the same time, they like routines are analytical and are not too curious to try something new. This is something that needs to be considered when catering to German hard adventure travellers in contrast to US hard adventure travellers.

In addition, prediction provides useful insights. For instance, travel agencies or hotels could use this approach to categorize their customers to provide customized marketing campaigns (personalized product development, personalized (online) ads and recommendations), e-mail newsletters or travel information (on preferred activities and destinations). Motives and personality traits are also essential aspects when creating personas (Pruitt & Adlin, 2006). Personas help to understand and cluster customer segments and to give them a name and a face (Kreutzer, 2018).

The findings will not only help to understand the essential elements to adequately market adventure tourism, but also to understand the personal effects (in terms of lifestyle changes) of adventure travel.

### *6.3. Limitations and further research*

In a quota sample, an attempt is made to establish representativeness by constructing the sample in such a way that it reflects known characteristic distributions in the basic population. The basic assumption is that a sample that reflects known characteristic distributions in the correct proportion should also be representative of unknown characteristic distributions. This assumption is controversial in the scientific discussion. Since only people with internet access were able to participate in the survey, and of these only people who are members of the panel, certain income strata, occupational groups or the like could be over- or under-represented. The main argument for the representativeness and applicability of such samples is that they have proven themselves in practice many times. In the present

case, a quota sample had to be used because there is no complete list of the population that would have been available for the realization of a true random selection. The literature describes other disadvantages of such quota-based selections, such as the effect of self-selection in panel composition and the panel effect (Greene, 2018; Veal, 2017).

Another limitation is that both "packaged" adventure tourists and "individual" adventure tourists, who organize their vacations independently, were interrogated together. There is a consensus in the literature that both types of adventure tourists should be studied. However, since they may differ in their characteristics and decisions, it is sometimes suggested to study them separately (Pomfret & Bramwell, 2016).

Some factors incorporated into the study are influenced by respondents' nationality, cultural background, or perceptions (e.g., risk perception; sensation-seeking and risk-taking propensity (Karl, 2018). The concept of soft and hard adventures is important to categorize adventure activities, yet some activities (e.g. mountain biking or kayaking) can be both hard and soft depending on the conditions and the intensity. It is therefore not always easy to group respondents into the two categories as their perception of the activity is subjective. Personality traits are also influenced by cultural aspects (Church, 2016) and are therefore not directly comparable. With regard to motives, it is also obvious that these can vary, at least experience plays a significant role here (Pomfret & Bromwell, 2016).

Therefore, a limitation of this study is the generalization of these findings. This study serves as a use case that focuses on German tourists, making it difficult to directly apply the research findings to other markets with different cultural characteristics. The results should be understood in the context of the high travel experience of Germans (Lohmann *et al.*, 2020).

This study compares its results with similar studies from different cultural backgrounds in the field of adventure tourism. As the studies use different concepts and constructs this comparison is limited.

Cross-cultural aspects should be considered in future research, as the extent to which tourists are accustomed to certain types or levels of risk from their home country most likely plays a role in their perception, attitude, or behaviour toward risk in adventure travel. For future research, it is therefore recommended that a larger sample size should be obtained and that subjects from different countries should be included to be able to make more robust statements regarding generalizability. Furthermore, individual elements of the study, e.g. significance of motives and their categories, differences between soft and hard adventure travellers as well as differences between "normal" tourists and adventure tourists could be examined in more detail. Furthermore, the framework should be used as a basis for further studies.

## References

- Adventure Travel Trade Association, George Washington University, & Xola Consulting. (2010). *Adventure tourism market report*. Seattle. Retrieved from [https://cdn.adventuretravel.biz/wp-content/uploads/2010/09/adventure\\_travel\\_market082610.pdf](https://cdn.adventuretravel.biz/wp-content/uploads/2010/09/adventure_travel_market082610.pdf) (Accessed on 07.03.2022)
- Adventure Travel Trade Association, & George Washington University. (2013). *Adventure tourism market study*. Seattle. Retrieved from <https://cdn.adventuretravel.biz/docs/research/adventure-tourism-market-study-2013-web.pdf> (Accessed on 07.03.2022)
- Alves, P., Saraiva, P., Carneiro J., Campos, P., Martins, H., Novais, P., & Marreiros, G. (2020). Modeling Tourists' Personality in Recommender Systems: How Does Personality Influence Preferences for Tourist Attractions? In Proceedings of the 28th ACM Conference on User Modeling, Adaptation and

- Personalization. Association for Computing Machinery, New York, USA, 4-13, <https://doi.org/10.1145/3340631.3394843>
- Bichler, B. F., & Peters, M. (2020). Soft adventure motivation: an exploratory study of hiking tourism. *Tourism Review* 76(2), 473-488, <https://doi.org/10.1108/TR-10-2019-0403>
- Boudreau, P., Mackenzie, S. H., & Hodge, K. (2020). Flow states in adventure recreation: A systematic review and thematic synthesis. *Psychology of Sport and Exercise* 46, 101611, <https://doi.org/10.1016/j.psychsport.2019.101611>
- Boyle, G. J. (2008). Critique of Five-Factor Model (FFM). In Boyle, G.J., G. Matthews & D. H. Saklofske (Eds.) (2008). *The SAGE Handbook of Personality Theory and Assessment: Vol. 1 – Personality Theories and Models*. Los Angeles: Sage, 295-312, <https://dx.doi.org/10.4135/9781849200462.n14>
- Breivik, G. (2010). Trends in adventure sports in a post-modern society. *Sport in Society* 13, 260-273, <https://doi.org/10.1080/17430430903522970>
- Britton, E., Kindermann, G., Domegan, C., & Carlin, C. (2020). Blue care: a systematic review of blue space interventions for health and wellbeing. *Health Promotion International* 35, 50-69, <https://doi.org/10.1093/heapro/day103>
- Brymer, E., & Houge Mackenzie, S. (2017). Psychology and the Extreme Sport Experience. In Felletti, F. (Eds) (2017). *Extreme Sports Medicine*. Cham: Springer, 3-13
- Buckley, R. (2020). Nature tourism and mental health: parks, happiness, and causation. *Journal of Sustainable Tourism* 28(9), 1409-1424, <https://doi.org/10.1080/09669582.2020.1742725>
- Cheng, M., Edwards, D., Darcy, S., & Redfern, K. (2018). A tri-method approach to a review of adventure tourism literature: Bibliometric analysis, content analysis, and a quantitative systematic literature review. *Journal of Hospitality & Tourism Research* 42(6), 997-1020, <https://doi.org/10.1177/1096348016640588>
- Church, A.T. (2016). Personality traits across cultures. *Current Opinion in Psychology* 8, 22-30, <https://doi.org/10.1016/j.copsyc.2015.09.014>
- De Raad, B. (2000). *The Big Five Personality Factors: The Psychological Approach to Personality*. Seattle: Hogrefe and Huber.
- Elmahdy, Y.M., Haukeland, J.V., & Fredman, P. (2017). *Tourism megatrends, a literature review focused on nature-based tourism*. As. Retrieved from <http://www.umb.no/statisk/ina/publikasjoner/fagrappport/if42.pdf> (Accessed on 07.03.2022)
- Farkić J., & Taylor, S. (2019). Rethinking Tourist Wellbeing through the Concept of Slow Adventure. *Sports* 7(8), 190, <https://doi.org/10.3390/sports7080190>
- Fluker, M. R., & Turner, L. W. (2000). Needs, motivations and expectations of a commercial whitewater rafting experience. *Journal of Travel Research* 38(4), 380-389, <https://doi.org/10.1177/004728750003800406>
- Freyer, W. (2011). *Tourismus-Marketing – Marktorientiertes Management im Mikro- und Makrobereich der Tourismuswirtschaft*. (7th ed.). München: Oldenbourg Verlag.
- Foscht, T., Swoboda, B., & Schramm-Klein, H. (2017). *Käuferverhalten: Grundlagen – Perspektiven – Anwendungen*. (6th ed.). Wiesbaden: Springer Gabler.
- Greene, W. H. (2018). *Econometric Analysis*. (8th ed.). Prentice Hall: Pearson.
- Gross, S., & Sand, M. (2019). Adventure tourism: a perspective paper. *Tourism Review* 75(1), 153-157, <https://doi.org/10.1108/TR-06-2019-0211>
- Gross, S., & Sand, M. (2022). *Draußen erleben! – Abenteuer – Outdoor – Tourismus*. München: UVK Verlag.
- Haegli, P., & Proebstl-Haider, U. (2016). Research on personal risk in outdoor recreation and nature-based tourism. *Journal of Outdoor Recreation and Tourism* 13, 1-9, <https://doi.org/10.1016/j.jort.2016.02.001>
- Hill, B. J. (1995). A guide to adventure travel. *Parks and Recreation* 30(9), 56-65

- Holm, M., Lugosi, P., Croes, R., & Torres, E. (2017). Risk-tourism, risk-taking and subjective well-being: A review and synthesis. *Tourism Management* 63, 115-122, <https://doi.org/10.1016/j.tourman.2017.06.004>
- Houge Mackenzie, S., Hodge, K., & Boyes, M. (2011). Expanding the flow model in adventure activities: A reversal theory perspective. *Journal of Leisure Research* 43(4), 519-544, <https://doi.org/10.1080/00222216.2011.11950248>
- Houge Mackenzie, S., & Goodnow, J. (2020). Adventure in the Age of COVID-19: Embracing Microadventures and Locavism in a Post-Pandemic World. *Leisure Sciences* 43(1-2), 62-69, <https://doi.org/10.1080/01490400.2020.1773984>
- Houge Mackenzie, S., & Hodge, K. (2020). Adventure recreation and subjective well-being: a conceptual framework, *Leisure Studies* 39(1), 26-40, <https://doi.org/10.1080/02614367.2019.1577478>
- Jacoby, J. (2002). Stimulus-Organism-Response Reconsidered: An Evolutionary Step in Modeling (Consumer) Behavior. *Journal of Consumer Psychology* 12 (1), 51-57
- Janowski, I., Gardiner, S., & Kwek, A. (2021). Dimensions of adventure tourism. *Tourism Management Perspectives* 37, 1-11, <https://doi.org/10.1016/j.tmp.2020.100776>
- Japutra, A., & Hossain, M. I. (2021). Tourists' mindsets and choice of adventurous holiday activities. *Current Issues in Tourism* 24(15), 2078-2087, <https://doi.org/10.1080/13683500.2020.1814705>
- Karl, M. (2018). Risk and Uncertainty in Travel Decision-Making: Tourist and Destination Perspective. *Journal of Travel Research* 57(1), 129-146, <https://doi.org/10.1177/0047287516678337>
- Kerr, J. H., & Houge Mackenzie, S. (2014). Confidence Frames and the Mastery of New Challenges in the Motivation of an Expert Skydiver. *The Sport Psychologist* 28, 221-232, <https://doi.org/10.1123/tsp.2013-0069>
- Kim, J., & S.J. Lennon (2013). Effects of Reputation and Website Quality on Online Consumers' Emotion, Perceived Risk and Purchase Intention. *Journal of Research in Interactive Marketing* 7 (1), 33-56
- Kreutzer, R. T. (2018). *Toolbox für Marketing und Management: Kreativkonzepte – Analysewerkzeuge – Prognoseinstrumente*. Wiesbaden: Springer Gabler.
- Kwon, B., & Park, E. (2016). The Relationship Between People's Personality Types by the MBTI and Tourist Behaviors. *International Journal of Management, Business, and Economics* 3(1), 23-31
- Laesser, C., Luo, J., & Beritelli, P. (2019). The SOMOAR operationalization: a holistic concept to travel decision modelling. *Tourism Review* 74 (3), 613-631
- Loetter, M. J., Geldenhuys, S., & Potgieter, M. (2012). Demographic profile of adventure tourists in Pretoia. *Global Journal of Business Research* 6(4), 97-109
- Lohmann, M., Yarar, N., Sonntag, U., & Schmücker, D. (2020). *Reiseanalyse Trend Study 2030: Holiday demand in the German market*. Kiel: F.U.R.
- Mansfield, L., Daykin, N., & Kay, T. (2020). Leisure and wellbeing, *Leisure Studies* 39(1), 1-10, <https://doi.org/10.1080/02614367.2020.1713195>
- Mason, M. C., Gos, L., & Moretti, A. (2016). Motivations, perceived risk and behavioural intentions in hard adventure tourism. A natural park case study. *Sinergie – Italian journal of management* 34(100), 181-199, <http://dx.doi.org/10.7433/s100.2016.11>
- McComb, J. F., & Beckmann, C. (2019). *Shaping the future of adventure and cultural travel, Profiles and behaviors of adventure and cultural travelers from the United States and Australia*. Monroe.
- McEwan, D., Boudreau, P., Curran, T., & Rhodes, R. E. (2019). Personality traits of high-risk sport participants: A meta-analysis. *Journal of Research in Personality* 79, 83-93, <https://doi.org/10.1016/j.jrp.2019.02.006>
- Mohamed, Z., Afandi, S. H. M., Ramachandran, S., Shuib, A., & Kunasekaran, P. (2018). Adventure tourism in Kampar, Malaysia: Profile and visit characteristics of domestic visitors. *International Journal of Business and Society* 19(S1), 175-185

- Mowen, J. C. (2000). *The 3M Model of Motivation and Personality: Theory and Empirical Applications to Consumer Behavior*. Boston, MA: Kluwer Academic.
- Mehrabian, A., & Russell, A. (1974). *An Approach to Environmental Psychology*, The MIT Press, Cambridge, MA.
- Mutz, M., & Mueller, J. (2016). Mental health benefits of outdoor adventures: Results from two pilot studies. *Journal of Adolescence* 49, 105-114, <https://doi.org/10.1016/j.adolescence.2016.03.009>
- Patterson, I., & Pan, R. (2007). The motivations of baby boomers to participate in adventure tourism and the implications for adventure tour providers. *Annals of Leisure Research* 10(1), 26-53, <https://doi.org/10.1080/11745398.2007.9686753>
- Piff, P. K., Dietze, P., Feinberg, M., Stancato, D. M., & Keltner, D. (2015). Awe, the Small Self, and Prosocial Behavior. *Journal of Personality and Social Psychology* 108(6), 883-899, <https://doi.org/10.1037/pspi0000018>
- Pomfret, G., & Bramwell, B. (2016). The characteristics and motivational decisions of outdoor adventure tourists: a review and analysis. *Current Issues in Tourism* 19(14), 1447-1478, <https://doi.org/10.1080/13683500.2014.925430>
- Pruitt, J., & Adlin, T. (2006). *The Persona Lifecycle – Keeping people in mind throughout product design*. Amsterdam: Elsevier.
- Rantala, O., Rokenes, A., & Valkonen, J. (2018). Is adventure tourism a coherent concept? A review of research approaches on adventure tourism. *Annals of Leisure Research* 21(5), 539-552, <https://doi.org/10.1080/11745398.2016.1250647>
- Robertson, P., Graves, E., Bobilya, A., Murdock, T., Brotherton, D., & Hunter, S. (2020). An Exploratory Study of the Benefits of a Three-Week Cycling Expedition for Potential First-Generation, College-Bound Students. *Journal of Outdoor Recreation, Education, and Leadership* 12(4), 409-416, <https://doi.org/10.18666/jorel-2020-v12-i4-9849>
- Rogerson, M., Wood, C., Pretty, J., Schoenmakers, P., Bloomfield, D., & Barton, J. (2020). Regular Doses of Nature: The Efficacy of Green Exercise Interventions for Mental Wellbeing. *International Journal of Environmental Research and Public Health* 17(5), 1526, <https://doi.org/10.3390/ijerph17051526>
- Rojo-Ramos, J., Vidal-Espinoza, R., Palacios-Cartagena, R.P., Galán-Arroyo, C., Manzano-Redondo, F., Gómez-Campos, R., & Adsuar, J.C. (2021). Adventure Tourism in the Spanish Population: Sociodemographic Analysis to Improve Sustainability. *Sustainability* 13, 1706, <https://doi.org/10.3390/sui3041706>
- Sand, M., & Gross, S. (2019). Tourism Research on Adventure Tourism – Current Themes and Developments. *Journal of Outdoor Recreation and Tourism* 28, 1-5, <https://doi.org/10.1016/j.jort.2019.100261>
- Sand, M., May, C., & Gross, S. (2019). *Prescribing adventure – analysing the benefits of adventure for health and well-being*. Paper presented at the VII<sup>th</sup> International Adventure Conference, 18<sup>th</sup>-21<sup>th</sup> June 2019, Dumfries & Galloway
- Schneider, P. P., & Vogt, C. A. (2012): Applying the 3M Model of Personality and Motivation to Adventure Travelers. *Journal of Travel Research* 51(6), 704-716, <https://doi.org/10.1177/0047287512451134>
- Spoerrle, M., & Bekk, M. (2014). Meta-Analytic Guidelines for Evaluating Single-Item Reliabilities of Personality Instruments. *Assessment* 21(3), 272-285, <https://doi.org/10.1177/107319113498267>
- Sung, H. H. (2004). Classification of Adventure Travelers: Behavior, Decision Making, and Target Markets. *Journal of Travel Research* 42(4), 343-356, <https://doi.org/10.1177/0047287504263028>
- Swarbrooke, J., Beard, C., Leckie, S., & Pomfret, G. (2003). *Adventure tourism: The new frontier*. Oxford: Butterworth-Heinemann.
- Varley, P. (2006). Confecting Adventure and Playing with Meaning: The Adventure Commodification Continuum. *Journal of Sport and Tourism* 11(2), 173-194, <https://doi.org/10.1080/14775080601155217>

Veal, A. J. (2017). *Research methods for leisure and tourism*. London: Pearson UK.

Viren, P. P., Murray, A. K., Brown, T., & Beckmann, C. (2017): North American Adventure Travelers: Seeking Personal Growth, New Destinations, and Immersive Culture.

Woods, S. A., & Hampson, S. E. (2005). Measuring the Big Five with single items using a bipolar response scale. *European Journal of Personality* 19(5), 373-390, <https://doi.org/10.1002/per.542>

Received: 08/03/2022

Accepted: 21/07/2022

Coordinating editors: Martina G. Gallarza

## Appendix: Sample description

Category	Questionnaire	Independent Variable	Scale
<b>Demographic</b>	Gender	Gender	nominal
	Age	Age	ratio
	Occupational status	Occupation	nominal
	Net Income per Household	Income	ratio
<b>Social Big 5 Personality Traits</b>	Extroversion (outgoing/energetic vs. solitary/reserved)	Extroversion	ordinal
	Agreeableness (critical/rational vs. friendly/compassionate)	Agreeableness	ordinal
	Neuroticism (sensitive/nervous vs. resilient/confident)	Neuroticism	ordinal
	Conscientiousness (efficient/organized vs. extravagant/careless)	Conscientiousness	ordinal
	Openness to experience (inventive/curious vs. consistent/cautious)	Openness to experience	ordinal
<i>Adventure travel motives</i>	I am looking for a compensation to everyday life while traveling.	Liminality	ordinal
	I feel like I am developing myself on holiday.	Self-development	ordinal
	I travel for a personal enrichment through experiences and knowledge.	Enrichment	ordinal
	Being completely absorbed in challenging situations gives me strength.	Strength	ordinal
	I can decelerate best when I am outdoors.	Deceleration	ordinal
	To bond with nature and culture of the destination is important to me.	Nature/culture	ordinal
	I prefer to share my experiences in nature with likeminded people.	Likeminded nature	ordinal
	I enjoy being accompanied by likeminded people while outdoors.	Likeminded activities	ordinal
	I enjoy having adventures in a constant fellowship.	Fellowship	ordinal
	I enjoy having adventures to get to know myself better.	Know Myself	ordinal
	Natural phenomena and beautiful landscapes give me a feeling of awe.	Awe	ordinal
	Natural phenomena and beautiful landscapes give me a feeling of awe and a sense of belonging.	Sense of belonging	ordinal
	Outdoors I am in touch with myself.	Harmony	
	I enjoy mastering challenging situations.	Challenge	ordinal
I know how to master/live through challenging situations.	Coping	ordinal	
After mastering a challenging situation, I feel like I can do anything.	Mastering	ordinal	
<i>Lifestyle changes: Did your last holiday impact your lifestyle at home?</i>	Started a new leisure activity at home	Leisure	ordinal
	Changed attitude towards cultures/places	Attitude	ordinal
	Money donated to a charity or good cause	Donate Donations?	ordinal
	Learned a new language	Language	ordinal
	Started a more sustainable lifestyle	Lifestyle	ordinal
	Interest in nutrition and cuisine	Nutrition	ordinal
	Interest in healthy behaviours	Health	ordinal
	Started volunteering	Volunteering	ordinal
Spent more time in nature/outdoors	Time	ordinal	