# ADVENTURE ACTIVITY PREFERENCES IN SOUTH AFRICAN NATIONAL PARKS

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## ABSTRACT

*Tourism is a key income generator and plays an important role in the financial sustainability of South African National Parks (SANParks), with accommodation currently being the greatest source of income. SANParks are presently operating at a 70-80% occupancy level, leaving little room for improvement or for generating more income from accommodation. Current estimations are that by 2022 operational costs will exceed tourism profits due to the unremitting increases in conservation expenses and management costs. A feasible solution to this problem was identified in the development of new adventure activities. This paper identifies the influence of tourists' socio-demographic and behavioural profile on adventure preferences in national parks in South Africa. An electronic survey was applied where the link to the questionnaire was posted on SANParks' website. Statistically significant differences were found for socio-demographic (for example age, gender, language) aspects that affect tourists' preferences for adventure activities. Behavioural aspects regarding these preferences were whether they are Wild Card holders, whether they participate in adventure and their view on whether there are sufficient adventure activities in parks. This study contributes to the development of new adventure activities for SANParks based on tourists' socio-demographics and behaviour.*

**Keywords**: Adventure; Adventure tourism; Socio-demographic aspects; South African National Parks.

## INTRODUCTION

One of the largest contributors to nature-/wildlife-based tourism in South Africa is South African National Parks (SANParks). SANParks utilise natural and heritage resources to provide visitors with a variety of tourism products. Those offered by the parks include overnight facilities, conference facilities, catering and adventure activities, such as wildlife viewing and trekking (SANParks, 2013a, 2017). As with most public-owned (state-owned) tourism products, SANParks are supported by government funding through the Department of Environmental Affairs, and tourism products generate 70 to 80% of its income for the Parks (SANParks, 2015). Swemmer *et al.* (2015) argue that protected areas need to meet financial obligations to achieve and maintain biodiversity goals for the conservation and sustainable use (tourism) of natural resources.

A possible strategy to generate additional revenue is to develop new tourism products and services that not only use the natural and cultural attributes of each park, but also deliver on the core mandate of heritage and biodiversity conservation (SANParks, 2013b). Developing additional products (current and new markets) to generate additional revenue is part of the SANParks 2022 "Responsible Tourism Strategy" aimed at benefiting local communities through the protection of park resources and responding to the needs of 'new crop' tourists (SANParks, 2013b). 'New crop' tourists refer to visitors who not only respond to the wilderness lore of national parks, but also to a broad range of adventure activities (SANParks, 2013b), and may be referred to as adventure tourists.

Adventure tourism is one of the fastest growing alternative forms of tourism (Ewert & Jamieson, 2003; ATTA, 2010) and is defined by Buckley (2006) as guided commercial tours, where the principle attraction is an outdoor activity that relies on the features of the natural terrain, generally requires specialised sporting or similar equipment and is exciting for the tourists. The key characteristics of adventure are the uncertainty of outcomes, danger and risk, challenge, anticipated rewards, novelty, stimulation and excitement, escapism and separation, exploration and discovery, absorption, contrasting emotions and education (Swarbrooke *et al.*, 2003). An adventure tourist is "someone who is seeking out an original and exciting holiday, with an opportunity to engage in self-discovery and cultural exchange, in a faraway place" (Swarbrooke *et al.*, 2003:56). Without risk, the term 'adventure' would be in clear contrast to its historical meaning (Weber, 2001). The risk is, therefore, a tenet within adventure tourism (Swarbrooke *et al.*, 2003). Although the risk is central within the definition of adventure, it is not necessarily the primary reason for perusing adventure tourism (Cater, 2006). Walle (1997) and Weber (2001) suggest that adventure is pursued by those seeking to gain insight into and enlightenment from nature.

Adventure tourism is divided into hard and soft adventure activities undertaken by different tourism markets (Patterson & Pan, 2007). Soft adventure activities refer to low-risk activities that require little to no experience to perform (camping or hiking), while hard adventure activities are demanding pursuits, requiring a great deal of competence to overcome high-risk situations (mountain biking and deep-sea scuba diving) (Ewert & Jamieson, 2003; Swarbrooke *et al.*, 2003; Williams & Soutar, 2005; Page *et al.*, 2006; Scott & Mowen, 2007; Jenkins, 2008; Buckley, 2012; Schneider & Vogt, 2012).

Market segmentation has become a standard procedure in strategic marketing. It is the process of identifying people (markets) with similar needs, wants and characteristics and placing them into groups based on selected characteristics. When appropriate groups of tourists are identified, tourism businesses and organisations (national parks) can be more precise in their product development (adventure activities) and marketing (Tangeland *et al.*, 2013). Market segmentation may assist in the development of tourist profiles as it enables product owners (national parks) to concentrate their resources and marketing efforts to achieve maximum tourism market penetration (Baloglu & McCleary, 1999; Lu & Pas, 1999; Jonker *et al.*, 2004; Pike & Ryan, 2004; Hui *et al.*, 2007). Cai (1998) and Tangeland *et al.* (2013) state that tourist behaviour plays a significant role in tourists' decisions to participate in adventure activities. Socio-demographic variables that influence tourist behaviour include age, gender, family lifecycle, household composition, nationality/place of residence, cultural background, marital status, dependent children, education level, motivation, occupation, distance travelled, values

and leisure time interests (Bowden, 2006; Jönsson & Devonish, 2008; Meng & Uysal, 2008; Tangeland & Aas, 2011; Tangeland *et al.*, 2013; Bosch, 2014).

Socio-demographic and behavioural variables affect tourist participation in outdoor activities. Research reports that members of nature/outdoor organisations are more likely to participate in outdoor activities, and males tend to participate more in hard adventure activities than females do, because, in some cases, more strength is required and some activities are more appealing to male participants (Diehm & Armatas, 2004). Younger people (18-25 years of age) tend to participate more in adventure activities. However, the presence of young children in households decreased participation in adventure/outdoor activities. Respondents with more than four years of tertiary education were five times more likely to participate in adventure activities (Tangeland *et al*., 2013), while more affluent participants also engage in more adventure activities. Due to the cost thereof, they have more disposable income. However, marital status has only a moderate effect on adventure participation, implying that marital status does not heavily influence participation in adventure activities (Mundet & Ribera, 2001; Sung, 2004; Cave & Ryan, 2005; Van der Merwe *et al*., 2010; Tangeland *et al*., 2013; Bosch, 2014).

## PURPOSE OF RESEARCH

Based on the above, the aim of the research was to determine the adventure activity preferences of tourists to SANParks and to relate these to their socio-demographic and behavioural variables to determine possible new adventure activities for national parks. The socio-demographic variables of tourists are used often in market segmentation studies and they determine tourist behaviour (Diehm & Armatas, 2004; Frochot & Morrison, 2008; Tangeland *et al*., 2013). This research could benefit SANParks by identifying possible adventure tourists among its current market and help identify new adventure activities that could be implemented, thereby creating a possible new income stream for national parks.

## METHODOLOGY

### Research design and data collection

A quantitative research design was followed using a web-based survey. This was a self-administered, electronic set of questions, accessible solely via the website of SANParks. Both descriptive and exploratory research approaches were used. The exploratory research approach enabled the use of statistical techniques to explore variable relationships (Douris, 2002). The descriptive research approach allowed socio-demographic and behavioural information to be gathered in formulating the profile of tourists visiting national parks. Behavioural variables examined were Wild Card holders (a Wild Card is a card purchased by tourists [members], who frequently visit national parks, to reduce entrance costs) based on the number of times visited, the number of nights stayed, whether tourists participated in adventure and whether they were willing to pay for adventure activities. These were selected as they are frequently used in similar research (Mundet & Ribera, 2001; Sung, 2004; Cave & Ryan, 2005; Van der Merwe *et al*., 2010; Tangeland *et al*., 2013).

The questionnaire consisted of three sections. Section A captured socio-demographic information based on previous studies of national parks and included questions regarding

gender, date of birth, home language, province and country of residence, education level and the age of children included in the travel party. Section B comprised questions that were formulated using studies of adventure tourism concerning soft (41 activities) and hard (21 activities) adventure activities. A five-point Likert scale was applied to identify the level of importance of listed soft and hard adventure activities. Section C contained questions aimed at determining the motives for participating in adventure activities. After the development of the questionnaire, it was reviewed and approved by the Ethics Committee of the North-West University (*NWU-00115-12-A4).*

The measurement methods were assessed according to validity and reliability criteria. All sections satisfied the criteria for content validity, as the variables included in the section were based on studies described in the literature review. The demographic information included in Section A was based on the work of Du Plessis *et al*. (2012), Kruger *et al*. (2012), Saayman and Scholtz (2012) and Slabbert and Van Loggerenberg (2012). The items included in Section B were based on the work of Van der Merwe (2009), Allen (2010), Mill (2010) and Schneider and Vogt (2012). Questions in Section C were formulated from research and literature based on adventure participation motives by Swarbrooke *et al.* (2003), Van der Merwe (2009), Williams and Souter (2009), Carnicelli-Filho *et al*., (2010) and Buckley (2012).

The convergent construct validity of the variables in Sections B and C was tested by means of exploratory factor analyses to determine the combination of factors in which the variables were most consistent (Quinlan *et al*., 2015). As it can be expected that there would be correlations between the different factors, oblimin rotation with Kaiser normalisation was performed in both cases to improve the interpretability of the factor structure. The Kaiser-Meyer-Olkin measure of sampling adequacy was used to determine whether the covariance matrix was suitable for factor analysis. Kaiser's criteria for the extraction of all factors with eigenvalues larger than one were used, because they were considered to explain a significant amount of variation in the data. All items with a factor loading greater than 0.3 were considered as contributing to a factor and all items with loadings less than 0.3 were regarded as not correlating significantly with this factor (Stevens, 2009; Dancey & Reidy, 2017). Any item with a factor loading greater than 0.3 that cross-loaded onto two factors was categorised in the factor where interpretability was best.

The reliability of the variables in Section B and C was measured by means of the Cronbach's alpha coefficients that represent the averages of all possible split-half reliabilities for a construct (Pallant, 2016). The Cronbach's alpha coefficients indicate the quality of the measurement. A score ranging from 0.60 to 0.70 indicates fair reliability, from 0.70 to 0.80 indicates good reliability and from 0.80 to 0.95 indicates very good reliability (Field, 2015). The average inter-item correlations were computed also as another measure of reliability. These, according to Cohen (1988), should lie between 0.15 and 0.55.

**Sampling method and size**

The questionnaire was accessible through a link posted on SANParks' website, which allowed for a convenience sample of tourist visitors to SANParks (Crossman, 2001; Maree & Pieterson, 2007a). Respondents had access to the questionnaire from April to May 2014, and 387 usable questionnaires were obtained. By using the sample size calculator, it was determined that 387 usable questionnaires/respondents (n) were a suitable representation of the population, yielding

an acceptable confidence interval of 4.98%. Visitors to SANParks between 2012 and 2013 were 4.9 million. Assuming a standard error of 0.05and a population size (N) of 1 000 000 or above, a sample size of 384 is needed to represent the population adequately (Krejcie & Morgan, 1970).

**Statistical analysis**

Data collected from the online survey were exported to Microsoft Excel™ and used to populate IBM® SPSS® Statistics V22.0 (Statistical Package for Social Sciences) software for analysis. The statistical analysis consisted of two factor analyses and an analysis of significant differences. The t-test was applied to compare the socio-demographic profiles regarding gender, age and home language and adventure behaviour responses (adventure participation, Wild Card membership and sufficient number of adventure activities) with the soft and hard adventure factors. The dependent variables used were the soft and hard adventure tourism preferences of respondents.

The ANOVA test is a statistical method used to compare two or more independent groups (Maree & Pietersen, 2007b; Choudhury, 2009). This procedure served to compare the socio-demographic variables marital status and the province of residence with the soft and hard adventure factors. It allowed determining whether there were significant differences in the mean values between two or more groups (Maree & Pietersen, 2007b). Significant statistical differences in both t-tests and ANOVA tests determined when the significant values between two or more data groups are equal to or less than 0.05 (Pallant, 2010). In addition to the statistically significant differences, Cohen's d-values were calculated as a measure of the effect size. This indicates the practical significance of the findings; in other words, the effect of these differences in practice.

**RESULTS**

**Profile of respondents**

A near to equal percentage of female (51%) and male (49%) respondents participated in the survey. Respondents were predominantly English-speaking (68%), married (67%), resided in Gauteng (41%), obtained a university or secondary qualification (47%), and are on average 49 years of age. The profile obtained of visitors to national parks from this research compares well with previous research conducted in national parks by Mouton (2009), Engelbrecht (2011) and Van Tonder (2012), who found that tourists to national parks in South Africa are mostly married, have obtained a university or secondary qualification, have an average age of 45 years and reside in Gauteng.

Previous research by Kruger and Saayman (2009), Du Plessis (2011), Van der Merwe *et al*. (2012) and Tourism Research in Economic Environs and Society (TREES, 2015a; 2015b), with different methodologies (interviews, web-based and face-to-face surveys), and a combined number of respondents of 4494, showed the profile of visitors to be similar to this research (Table 1). This confirms that the sample is a good representation of the profile of visitors. Thirty-four percent of the respondents had accompanying children in their travel party. In this regard, Thornton *et al*. (1997) found that children influence adults' travel behaviour, which includes the choice of destination, activities and physical needs. Consequently, it is an

important aspect to take into consideration. Most respondents (69%) were in possession of a Wild Card (loyalty card), had visited SANParks over the past five years an average of 8.54 times and stayed for two to seven nights.

*Table 1.* **COMPLETED RESEARCH ON VISITOR PROFILE OF SOUTH AFRICAN NATIONAL PARKS**

| Authors | Research type | Average profile of respondents |
|---|---|---|
| Kruger & Saayman (2009) | A marketing analysis of overnight visitors to Kruger national park | Gender: Male<br>Afrikaans- and English-speaking<br>Main province of origin: Gauteng<br>Average age: 34-49years<br>Diploma/Degree<br>Married |
| Saayman and Kruger (2009) | A marketing analysis of overnight visitors to Marakele National Park | Gender: Male<br>Afrikaans- and English-speaking<br>Main province of origin: Gauteng<br>Average age: 46 years<br>Diploma/Degree<br>Married |
| Du Plessis (2011) | A comparison of international and national tourists' travel motives to the Kruger National Park | Gender: Male<br>Afrikaans- and English-speaking<br>Average age: 44.9 years<br>Married<br>Diploma/Degree |
| Van der Merwe *et al*. (2012) | A marketing analysis of overnight visitors to Kgalagadi Transfrontier National Park | Gender: Male<br>Afrikaans- and English-speaking<br>Main province of origin: Western Cape/ Gauteng<br>Average age: 44.5 years<br>Married<br>Diploma/Degree |
| TREES (Tourism Research in Economic Environs and Society) (2015a) | A strategic marketing analysis Golden Gate Highlands National Park | Gender: Male<br>Afrikaans- and English-speaking<br>Main province of origin: Gauteng<br>Average age: 47 years<br>Diploma/Degree<br>Married |
| TREES (Tourism Research in Economic Environs and Society) (2015b) | A marketing analysis of overnight visitors to Tsitsikamma National Park | Gender: Female<br>Afrikaans- and English-speaking<br>Main province of origin: Western Cape/ Eastern Cape<br>Average age: 45 years<br>Diploma/Degree<br>Married |

**Factor analyses: Soft and hard adventure activities**

*Table 2.*   **FACTOR ANALYSIS: SOFT ADVENTURE ACTIVITIES**

| Importance of factors | Factors | Items/activities | Cronbach's alpha | Mean value | Eigenvalue (total) |
|---|---|---|---|---|---|
| Most important | *2.* *Interpretive* | Safari/game viewing (0.805)<br>Night drives (0.768)<br>Bird watching (0.564)<br>Stargazing (0.440)<br>Guided walks (0.423) | 0.72 | 3.71 | 3.67 |
| | *7.* *Self-executing* | 4x4 trails [guided] (0.623)<br>4x4 trails [self-drive] (0.752)<br>Campsite camping (0.666) | 0.72 | 3.45 | 1.08 |
| | *4.* *Heritage* | Archaeological tours (0.846)<br>Historical tours (0.825)<br>Geographical tours (0.707)<br>Cultural dances (0.684)<br>Botanical tours - Tsitsikamma<br>    Forest (0.434) | 0.85 | 2.86 | 1.68 |
| | *6.* *Trail/Trekking* | Backpacking (0.659)<br>Cycling routes (0.601)<br>Hiking (0.549)<br>Horseback safaris (0.503) | 0.81 | 2.49 | 1.26 |
| | *1.* *Water-based* | Surfboard surfing (0.737)<br>Paddle boats (0.697)<br>Sailing (0.687)<br>Snorkelling (0.662)<br>Sandboarding (0.623)<br>Motorboat rides (0.619)<br>Jet skiing (0.613)<br>Scuba diving (0.596)<br>Canoeing (0.560) | 0.90 | 1.76 | 12.43 |
| | *8.* *Team-based* | Orienteering (0.772)<br>Team building (0.627)<br>Obstacle course (0.522)<br>Zip lining (0.303) | 0.84 | 1.70 | 1.05 |
| | *3.* *Wildlife interaction* | Elephant rides (0.852)<br>Animal interaction [limited<br>    patting and feeding] (0.819)<br>Quad biking (0.563) | 0.81 | 1.62 | 2.09 |
| Least important | *5.* *Consumptive* | Hunting (0.897)<br>Archery (0.819)<br>Fishing [catch and release]<br>    (0.515) | 0.67 | 1.49 | 1.39 |

Factor analyses were conducted for the soft adventure activities (Table 2) and the hard adventure activities (Table 3). For the soft adventure activities, eight factors were identified as significant: *water-based, interpretive, wildlife interaction, heritage, consumptive, trail/trekking, self-executing* and *team-based* (Table 2). Bartlett's test of sphericity was significant [$X^2(703)=7492.650$; $p<0.001$] and showed that the variables, included in each factor, correlate with each other and that the factor analysis is appropriate (Pallant, 2010). The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.913, above the recommended value of 0.6. The Cronbach's alpha values ranged between 0.67 and 0.90, indicating acceptable internal consistency (Cortina, 1993; Field, 2006). Total variance explained was above 50%, showing an appropriate fit of the selected components (Pietersen & Maree, 2007). *Interpretive* (Factor 2) is regarded as the most important soft adventure factor, having a mean value of 3.71 and a Cronbach's alpha value of 0.72.

**Table 3.**    **FACTOR ANALYSIS: HARD ADVENTURE ACTIVITIES**

| Importance of factors | Factors | Items/activities | Cronbach's alpha | Mean value | Eigenvalues (total) |
|---|---|---|---|---|---|
| Most important | *2. Wilderness training and survival courses* | Field-guide training (0.890)<br>Wilderness camping (0.757)<br>Survival and wilderness training (0.676)<br>Survival games (0.460) | 0.83 | 2.91 | 1.91 |
| | *3. Adventure sports* | Kayaking (0.948)<br>Mountain biking (0.880)<br>Trail running (0.747)<br>Rock climbing (0.735)<br>White-water rafting (0.722)<br>Caving (0.682)<br>Mountain climbing (0.645) | 0.94 | 1.98 | 1.08 |
| Least important` | *1. Adrenaline rush* | Bungee jumping (0.903)<br>Skydiving (0.880)<br>High-rope activities (0.845)<br>Off-road and dirt biking (0.826)<br>Cliff jumping (0.816)<br>Hang gliding (0.729)<br>Kitesurfing (0.689)<br>Paragliding/Parasailing (0.578)<br>Abseiling (0.578)<br>Shark diving (0.515) | 0.95 | 1.53 | 12.18 |

Bartlett's test of Sphericity: $X^2(210) = 6865.996$; $p<0.001$.       KMO = 0.955, $>0.05$.

For the hard adventure activities, three factors were identified as significant: *adventure rush, wilderness training and survival courses* and *adventure sports* (Table 3). Cronbach's alpha values ranged between 0.83 and 0.95, indicating acceptable internal consistency (Cortina, 1993; Field, 2006). Total variance explained was above 50%, indicating an appropriate fit of

the selected components (Pietersen & Maree, 2007). *Wilderness training and survival courses* obtained the highest mean value (2.91), making these the most important hard adventure factors.

**Influence of socio-demographic variables on adventure activities**

The t-test was applied to compare gender, age and home language variations with the two factor analyses of hard and soft adventure activities. Only values that document significant statistical and practical differences are discussed.

*Socio-demographic variables*

Statistically significant differences were found for gender, age and home language when compared with the hard and soft adventure activities. Male respondents recorded significantly higher mean values than female respondents did for the soft adventure factors *water-based* (p=0.019), *consumptive* (p=0.003), *trail/trekking* (p=0.024) and *self-executing* (p=0.013). Hard adventure activities included *wilderness training and survival courses* (p=0.026). Of the soft adventure factors, those that yielded the highest mean values for both male (3.58) and female (3.31) were *self-executing* (4x4 trails and campsite camping). Males, in particular, found this soft adventure activity to be more important (mean value of 3.58) than female participants did. The same was observed for *trail/trekking*, where male respondents recorded a mean value of 2.61 compared to female respondents with a mean value of 2.38. Concerning the hard adventure factors, male respondents found *wilderness training and survival courses* to be more important hard adventure activities than their female counterparts (mean value of 3.03 vs. 2.78).

As indicated in the literature, previous research shows that younger people tend to participate more in adventure activities than older people do. Therefore, respondents were divided into two categories based on age: 39 years and younger and 40 years and older. Statistically significant differences were found for all soft and hard adventure factors. Younger respondents (39 years and younger) regarded all adventure factors (soft and hard) as more important (Table 4) than the older cohort did. They regarded the soft adventure activities *interpretive* (mean value of 3.99 vs. 3.64) and *self-executing* (mean value of 3.72 vs. 3.38) as especially important, and for hard adventure activity, *wilderness training and survival courses* were regarded as especially important.

Statistically significant differences were found between English and Afrikaans speakers in the soft adventure factors of *consumptive* (p=0.022), *self-executing* (p=0.001) and *team-based* (p=0.015). However, no statistically significant differences were found for hard adventure factors. The factor that had the highest mean value was *self-executing*, where Afrikaans-speaking respondents displayed an average mean value of 3.74 compared to that of English-speaking respondents with a mean value of 3.3. This implies that Afrikaans-speaking visitors are more likely to participate in soft adventure activities provided in SANParks.

ANOVAs and Tukey's *post hoc* tests were performed for the socio-demographic aspects marital status and the province of residence (Table 5). Marital status was divided into four categories: divorced/widowed, married, single and living together.

*Table 4.* **SOCIO-DEMOGRAPHIC: "t"-TEST RESULTS**

| Factors | | Gender Mean | [a]t-Test | [b]p | (Years) | Age Mean | [a]t-Test | [b]p | | Home language Mean | [a]t-Test | [b]p |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Water-based (soft)* | Male | 1.86 | EQV assumed | 0.019* | ≤39 | 2.11 | EQV assumed | 0.001* | Afr. | 1.85 | EQV assumed | 0.254 |
| | Female | 1.67 | EQV not assumed | 0.019 | 40≤ | 1.66 | EQV not assumed | 0.001* | Eng. | 1.75 | EQV not assumed | 0.254 |
| *Interpretive (soft)* | Male | 3.71 | EQV assumed | 0.912 | ≤39 | 3.99 | EQV assumed | 0.001* | Afr. | 3.77 | EQV assumed | 0.478 |
| | Female | 3.70 | EQV not assumed | 0.912 | 40≤ | 3.64 | EQV not assumed | 0.001* | Eng. | 3.71 | EQV not assumed | 0.479 |
| *Wildlife interaction (soft)* | Male | 1.68 | EQV assumed | 0.203 | ≤39 | 1.95 | EQV assumed | 0.001* | Afr. | 1.76 | EQV assumed | 0.070 |
| | Female | 1.56 | EQV not assumed | 0.203 | 40≤ | 1.51 | EQV not assumed | 0.002 | Eng. | 1.57 | EQV not assumed | 0.077 |
| *Heritage (soft)* | Male | 2.92 | EQV assumed | 0.163 | ≤39 | 3.16 | EQV assumed | 0.001* | Afr. | 2.9 | EQV assumed | 0.661 |
| | Female | 2.78 | EQV not assumed | 0.163 | 40≤ | 2.77 | EQV not assumed | 0.002* | Eng. | 2.86 | EQV not assumed | 0.652 |
| *Consumptive (soft)* | Male | 1.61 | EQV assumed | 0.003* | ≤39 | 1.83 | EQV assumed | 0.001* | Afr. | 1.65 | EQV assumed | 0.022* |
| | Female | 1.38 | EQV not assumed | 0.003 | 40≤ | 1.40 | EQV not assumed | 0.001* | Eng. | 1.45 | EQV not assumed | 0.044* |
| *Trail/trekking (soft)* | Male | 2.61 | EQV assumed | 0.024* | ≤39 | 2.90 | EQV assumed | 0.001* | Afr. | 2.63 | EQV assumed | 0.134 |
| | Female | 2.38 | EQV not assumed | 0.024 | 40≤ | 2.39 | EQV not assumed | 0.001* | Eng. | 2.46 | EQV not assumed | 0.142 |

*(Continued)*

**Table 4.    SOCIO-DEMOGRAPHIC: "t"-TEST RESULTS** *(cont.)*

| Factors | | Gender Mean | [a]t-Test | [b]p | Age (Years) | Mean | [a]t-Test | [b]p | Home language Mean | [a]t-Test | [b]p |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Self-executing (soft)* | Male | 3.58 | EQV assumed | 0.013* | ≤39 | 3.72 | EQV assumed | 0.009* | Afr. 3.74 | EQV assumed | 0.001* |
| | Female | 3.31 | EQV not assumed | 0.013* | 40≤ | 3.38 | EQV not assumed | 0.006* | Eng. 3.3 | EQV not assumed | 0.001* |
| *Team-based (soft)* | Male | 1.73 | EQV assumed | 0.447 | ≤39 | 2.09 | EQV assumed | 0.001* | Afr. 1.87 | EQV assumed | 0.015* |
| | Female | 1.67 | EQV not assumed | 0.447 | 40≤ | 1.58 | EQV not assumed | 0.001* | Eng. 1.64 | EQV not assumed | 0.015 |
| *Adrenaline rush (hard)* | Male | 1.54 | EQV assumed | 0.823 | ≤39 | 1.96 | EQV assumed | 0.001* | Afr. 1.61 | EQV assumed | 0.240 |
| | Female | 1.52 | EQV not assumed | 0.823 | 40≤ | 1.41 | EQV not assumed | 0.001* | Eng. 1.51 | EQV not assumed | 0.234 |
| *Wilderness training and survival courses (hard)* | Male | 3.03 | EQV assumed | 0.026* | ≤39 | 3.48 | EQV assumed | 0.001* | Afr. 3.04 | EQV assumed | 0.247 |
| | Female | 2.78 | EQV not assumed | 0.026* | 40≤ | 2.75 | EQV not assumed | 0.001* | Eng. 2.89 | EQV not assumed | 0.246 |
| *Adventure sports (hard)* | Male | 2.07 | EQV assumed | 0.674 | ≤39 | 2.57 | EQV assumed | 0.001* | Afr. 2.1 | EQV assumed | 0.260 |
| | Female | 1.89 | EQV not assumed | 0.674 | 40≤ | 1.80 | EQV not assumed | 0.001* | Eng. 1.96 | EQV not assumed | 0.257 |

[a] t-Test for equality of means        [b] p: Significance (2-tailed)        EQV=Equal Variance        *p<0.05

**Table 5.   SOCIO-DEMOGRAPHIC RESULTS: TUKEY'S POST HOC TEST AND ANOVA**

| | **Marital status** | | | | | **Province of residence** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Tukey's post hoc results | | | ANOVA results | | Tukey's post hoc results | | | ANOVA results | |
| | Subset for α-0.05 | | | | | Subset for α-0.05 | | | | |
| **Factors** | Marital status | Mean 1 | Mean 2 | Comparison | p-Value | Province | Mean 1 | Mean 2 | Comparison | p-Value |
| *Water-based (soft)* | Div. & Widow/er | **1.54** | | Between | 0.037* | Mpumalanga | 1.55 | | Between | 0.064 |
| | Married | 1.74 | | – | | Gauteng | 1.70 | | Within | – |
| | Live together | 1.85 | | | | KZN | 1.71 | | | |
| | Single | | **2.00** | | | East-Cape | 1.84 | | | |
| | | | | | | West-Cape | 1.98 | | | |
| *Interpretive (soft)* | Married | 3.68 | | Between | 0.529 | KZN | 3.54 | | Between | 0.153 |
| | Div. & Widow/er | 3.73 | | – | | Mpumalanga | 3.55 | | Within | – |
| | Single | 3.78 | | | | Gauteng | 3.65 | | | |
| | Live together | 3.85 | | | | East-Cape | 3.66 | | | |
| | | | | | | West-Cape | 3.57 | | | |
| *Wildlife interaction (soft)* | Live together | **1.38** | | Between | 0.087 | Gauteng | 1.48 | | Between | 0.508 |
| | Div. & Widow/er | 1.55 | 1.55 | – | | East-Cape | 1.57 | | Within | – |
| | Married | 1.62 | 1.62 | | | KZN | 1.63 | | | |
| | Single | | **1.87** | | | West-Cape | 1.68 | | | |
| | | | | | | Mpumalanga | 1.72 | | | |
| *Heritage (soft)* | Div. & Widow/er | **2.80** | | Between | 0.022* | KZN | 2.67 | | Between | 0.241 |
| | Married | **2.81** | | – | | Gauteng | 2.73 | | Within | – |
| | Single | **2.82** | | | | West-Cape | 2.97 | | | |
| | Live together | | **3.32** | | | East-Cape | 2.98 | | | |
| | | | | | | Mpumalanga | 3.01 | | | |
| *Consumptive (soft)* | Div. & Widow/er | 1.33 | | Between | 0.086 | West-Cape | 1.36 | | Between | 0.627 |
| | Live together | 1.37 | | – | | Gauteng | 1.47 | | Within | – |
| | Married | 1.49 | | | | East-Cape | 1.53 | | | |
| | Single | 1.71 | | | | Mpumalanga | 1.54 | | | |
| | | | | | | KZN | 1.58 | | | |
| *Trail/trekking (soft)* | Div. & Widow/er | **2.18** | | Between | 0.052 | Mpumalanga | 2.33 | | Between | 0.084 |
| | Married | 2.47 | 2.47 | – | | Gauteng | 2.40 | | Within | – |
| | Single | | **2.70** | | | KZN | 2.41 | | | |
| | Live together | | **2.72** | | | East-Cape | 2.42 | | | |
| | | | | | | West-Cape | 2.79 | | | |

***Continued***

**Table 5.** **SOCIO-DEMOGRAPHIC RESULTS: TUKEY'S POST HOC TEST AND ANOVA** *(cont.)*

| | **Marital status** | | | | | **Province of residence** | | | | |
| | Tukey's post hoc results | | | ANOVA results | | Tukey's post hoc results | | | ANOVA results | |
| | Subset for α-0.05 | | | | | Subset for α-0.05 | | | | |
| **Factors** | Marital status | Mean 1 | Mean 2 | Comparison | p-Value | Province | Mean 1 | Mean 2 | Comparison | p-Value |
|---|---|---|---|---|---|---|---|---|---|---|
| *Self-executing (soft)* | Div. & Widow/er | 3.33 | | Between | 0.517 | East-Cape | 3.34 | | Between | 0.549 |
| | Single | 3.40 | | | – | West-Cape | 3.39 | | | – |
| | Married | 3.44 | | | | Gauteng | 3.40 | | | |
| | Living together | 3.68 | | | | KZN | 3.45 | | | |
| | | | | | | Mpumalanga | 3.79 | | | |
| *Team-based (soft)* | Div. & Widow/er | 1.65 | | Between | 0.293 | KZN | 1.62 | | Between | 0.217 |
| | Married | 1.68 | | | – | Mpumalanga | 1.64 | | | – |
| | Live together | 1.68 | | | | Gauteng | 1.65 | | | |
| | Single | 1.90 | | | | East-Cape | 1.68 | | | |
| | | | | | | West-Cape | 1.90 | | | |
| *Adrenaline rush (hard)* | Div. & Widow/er | **1.32** | | Between | 0.007* | Mpumalanga | 1.35 | | Between | 0.020* |
| | Married | 1.48 | 1.48 | | – | East-Cape | 1.40 | | | – |
| | Live together | | **1.74** | | | KZN | 1.45 | | | |
| | Single | | **1.79** | | | Gauteng | 1.46 | | | |
| | | | | | | West-Cape | 1.77 | | | |
| *Wilderness training and survival courses (hard)* | Married | 2.85 | | Between | 0.398 | Mpumalanga | 2.75 | | Between | 0.842 |
| | Single | 3.04 | | | – | KZN | 2.78 | | | – |
| | Live together | 3.07 | | | | Gauteng | 2.93 | | | |
| | Div. & Widow/er | 3.08 | | | | West-Cape | 2.99 | | | |
| | | | | | | East-Cape | 3.00 | | | |
| *Adventure sports (hard)* | Div. & Widow/er | **1.60** | | Between | 0.016* | Mpumalanga | 1.68 | | Between | 0.013* |
| | Married | 1.95 | 1.95 | | – | East-Cape | 1.89 | 1.89 | | – |
| | Live together | | **2.23** | | | KZN | 1.89 | 1.89 | | | |
| | Single | | **2.24** | | | Gauteng | 1.95 | 1.95 | | | |
| | | | | | | West-Cape | | 2.37 | | |

*p <0.05   Div.= Divorced   Between=Between groups   Mean (bold)=Significant   Mean (non-bold)= Not significant
West-Cape=Western Cape Province   East-Cape=Eastern Cape Province   KZN=KwaZulu-Natal

Both a statistically and a practically significant difference was found for the soft adventure factors *water-based* (p=0.034) and *heritage* (p=0.022), while only a practically significant difference was established for *wildlife interaction* and *trail/trekking*. Respondents living together rated *heritage* and *trail/trekking* to be more important soft adventure activities for national parks, compared to any of the other marital status groupings. Respondents living together rated *heritage* as being important to very important activities, with an average mean value of 3.32.

For hard adventure factors, single respondents and respondents who live together indicated practically significant differences for adventure sports when compared to those who were divorced/widowed. The mean values of each group are, however, less than '3', indicating that these respondents regard these sports as less important. No statistically or practically significant differences were identified for the soft adventure factors between residents who resided in different provinces. A statistically and practically significant difference was found for the hard adventure factor *adventure sports* (p=0.013), while a statistically significant difference was recorded only for the factor *adrenaline rush* (p=0.020). Statistical significance means the results did not occur by chance. Practically significant differences determine whether the difference is important in practice (Ellis & Steyn, 2003).

Respondents who reside in the Western Cape identified adventure sports as being less important to important, whereas respondents who reside in other provinces responded that adventure sports are less important to not important at all, particularly those from Mpumalanga, since there is a practical difference between the mean values of Mpumalanga (mean value of 1.68) and the Western Cape (mean value of 2.37). Therefore, it is more likely that visitors from the Western Cape will participate in adventure sports activities in national parks than visitors from any other province in South Africa.

**Behavioural results**

When asked: "Do you participate in adventure activities in your leisure time?", statistically significant differences were found between respondents who replied "Yes" and those who responded in the negative for all factors (Table 6 and Tables 2 & 3). Respondents who affirmed that they participated in adventure activities indicated statistically significant higher mean values for all adventure factors (both soft and hard), compared to those who did not participate in adventure activities. Respondents who do participate in adventure activities rated adventure activities higher. Soft adventure factors that tested important to very important for respondents who responded "Yes" (average mean values were above three) include *interpretive* (mean value of 3.80) and *self-executing* (mean value of 3.59). Hard adventure factors *wilderness training and survival courses* were identified as being important to very important (mean value of 3.12).

In response to the question, "Do you feel that the current number and type of activities (guide trails) in national parks are sufficient?", those who replied 'No' displayed significantly higher mean values for all soft and hard adventure factors compared to those who said 'Yes'.

*Table 6.* **BEHAVIOURAL RESULTS: "t"-TEST RESULTS**

| Factors | Adventure participation | | | | Sufficiency of adventure activities | | | | Wild Card membership | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Item | Mean | [a]t-Test | [b]p | Item | Mean | [a]t-Test | [b]p | Item | Mean | [a]t-Test | [b]p |
| *Water-based (soft)* | Yes | 1.88 | EQV assumed | 0.001 * | Yes | 1.67 | EQV assumed | 0.001 * | Yes | 1.70 | EQV assumed | 0.017 * |
| | No | 1.57 | EQV not assumed | 0.001 | No | 2.08 | EQV not assumed | 0.001 | No | 1.90 | EQV not assumed | 0.022 |
| *Interpretive (soft)* | Yes | 3.80 | EQV assumed | 0.003 * | Yes | 3.64 | EQV assumed | 0.001 * | Yes | 3.71 | EQV assumed | 0.986 |
| | No | 3.57 | EQV not assumed | 0.004 | No | 3.97 | EQV not assumed | 0.001 | No | 3.71 | EQV not assumed | 0.986 |
| *Wildlife interaction (soft)* | Yes | 1.75 | EQV assumed | 0.001 * | Yes | 1.48 | EQV assumed | 0.001 * | Yes | 1.49 | EQV assumed | 0.001 * |
| | No | 1.41 | EQV not assumed | 0.001 | No | 2.09 | EQV not assumed | 0.001 | No | 1.90 | EQV not assumed | 0.001 |
| *Heritage (soft)* | Yes | 2.96 | EQV assumed | 0.011 * | Yes | 2.80 | EQV assumed | 0.015 * | Yes | 2.81 | EQV assumed | 0.108 |
| | No | 2.70 | EQV not assumed | 0.014 | No | 3.09 | EQV not assumed | 0.005 | No | 2.98 | EQV not assumed | 0.109 |
| *Consumptive (soft)* | Yes | 1.59 | EQV assumed | 0.002 * | Yes | 1.40 | EQV assumed | 0.001 * | Yes | 1.41 | EQV assumed | 0.002 * |
| | No | 1.34 | EQV not assumed | 0.001 | No | 1.80 | EQV not assumed | 0.001 | No | 1.68 | EQV not assumed | 0.006 |
| *Trail/trekking (soft)* | Yes | 2.69 | EQV assumed | 0.001 * | Yes | 2.34 | EQV assumed | 0.001 * | Yes | 2.45 | EQV assumed | 0.143 |
| | No | 2.20 | EQV not assumed | 0.001 | No | 3.02 | EQV not assumed | 0.001 | No | 2.61 | EQV not assumed | 0.134 |
| *Self-executing (soft)* | Yes | 3.59 | EQV assumed | 0.002 * | Yes | 3.31 | EQV assumed | 0.001 * | Yes | 3.55 | EQV assumed | 0.004 * |
| | No | 3.24 | EQV not assumed | 0.003 | No | 3.90 | EQV not assumed | 0.001 | No | 3.21 | EQV not assumed | 0.005 |

*Continued*

*Table 6.*   **BEHAVIOURAL RESULTS: "t"-TEST RESULTS** *(cont.)*

| Factors | Adventure participation | | | | Sufficiency of adventure activities | | | | Wild Card membership | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Item | Mean | [a]t-Test | [b]p | Item | Mean | [a]t-Test | [b]p | Item | Mean | [a]t-Test | [b]p |
| *Team-based (soft)* | Yes | 1.84 | EQV assumed | 0.001 * | Yes | 1.54 | EQV assumed | 0.001 * | Yes | 1.61 | EQV assumed | 0.001 * |
| | No | 1.48 | EQV not assumed | 0.001 | No | 2.27 | EQV not assumed | 0.001 | No | 1.91 | EQV not assumed | 0.002 |
| *Adrenaline rush (hard)* | Yes | 1.69 | EQV assumed | 0.001 * | Yes | 1.40 | EQV assumed | 0.001 * | Yes | 1.41 | EQV assumed | 0.001 * |
| | No | 1.27 | EQV not assumed | 0.001 | No | 1.99 | EQV not assumed | 0.001 | No | 1.79 | EQV not assumed | 0.001 |
| *Wilderness training and survival courses (hard)* | Yes | 3.12 | EQV assumed | 0.001 * | Yes | 2.72 | EQV assumed | 0.001 * | Yes | 2.81 | EQV assumed | 0.010 * |
| | No | 2.57 | EQV not assumed | 0.001 | No | 3.56 | EQV not assumed | 0.001 | No | 3.13 | EQV not assumed | 0.010 |
| *Adventure sports (hard)* | Yes | 2.20 | EQV assumed | 0.001 * | Yes | 1.80 | EQV assumed | 0.001 * | Yes | 1.84 | EQV assumed | 0.001 * |
| | No | 1.63 | EQV not assumed | 0.001 | No | 2.63 | EQV not assumed | 0.001 | No | 2.29 | EQV not assumed | 0.001 |

[a] t-Test for equality of means      [b] p: Significance (2-tailed)      EQV=Equal Variance      $*p<0.05$

Soft adventure factors regarded important to very important (based on their mean values) by respondents who indicated insufficient activities in national parks are *interpretive* (mean value of 3.97), *self-executing* (mean value of 3.90), *heritage* (mean value of 3.09) and *trail/trekking* (mean value of 3.02). Hard adventure factors identified by this group are *wilderness training and survival courses*.

Wild Card holders showed statistically significant differences for soft adventure factors of *water-based* (p=0.017), *wildlife interaction* (p=0.001), *consumptive* (p=0.002), *self-executing* (p=0.005) and *team-based* (p=0.001) and for hard adventure factors *adrenaline rush* (p=0.001), *wilderness training and survival courses* (p=0.010) and *adventure sports* (p=0.001). They considered the soft adventure factor of *self-executing* to be very important (mean=3.55), whereas those who did not possess a Wild Card considered it less important (mean=3.21).

Non-Wild Card holders consider *wilderness training and survival courses* to be important factors (mean value of 3.13) for national parks, but less important for Wild Card holders (mean value of 2.81). Apart from self-executing activities, higher mean values were found among those who did not own a Wild Card compared to those who did, suggesting that non-Wild Cardholders will be more likely to participate in adventure activities in national parks.

## DISCUSSION

The results of this research reveal possible adventure activities (hard and soft) as well as different market segments of the respondents of this research that will partake in adventure, which can assist national parks to generate possible new income.

Three hard adventure factors were identified as possible adventure activities for national parks, namely adrenaline rush, wilderness training and survival courses, and adrenalin sport. This result may be influenced by these types of activities being fashionable for adventure tourists given the exposure of similar types of programmes on television shows such as *Ultimate Survivor*, *Naked and Afraid* and *Dual Survivor*. Therefore, SANParks' management needs to consider introducing these kinds of activities, where possible, for extra income generation. These activities also place great emphasis on interpretation and education elements, making them ideal activities, if managed correctly, to support the educational component emphasised by the principles of ecotourism (Saayman, 2009). From an operational perspective, this implies that advanced field guide and wilderness training and survival games could be offered on a small-scale basis (to limit the impact on nature) by limiting participation numbers per activity and increasing the cost of involvement to protect the natural environment (Saayman, 2009). SANParks can evaluate each national park regarding terrain, infrastructure and landscapes, to determine possible adventure product development per park. It is important to consider and identify the potential impact of selected adventure activities on the natural environment before implementation thereof by conducting applicable environmental impact assessments (EIA).

Socio-demographic aspects, such as gender, age and marital status, could be used as market segmentation tools to attract visitors from SANParks' current market to participate in adventure activities (for possible additional income). The main findings related to the influential socio-demographic aspects are outlined below.

**Gender**

This research confirms previous research (Cave & Ryan, 2005; Buckley, 2007; Jönsson & Devonish, 2008; Meng & Uysal, 2008; Tangeland *et al*., 2013) that males tend to participate in adventure activities more than females do. Therefore, SANParks should explore the possibilities of developing adventure activities aimed at male participants, such as water-based activities (canoeing and snorkelling), consumptive activities (fishing and hunting) and trail/trekking (guided and unguided trail walks and hiking routes). Water-based activities such as surfboard surfing, pebble boats, sailing, snorkelling, jet skiing and scuba diving are all water-based/ocean-based activities that can be implemented in coastal parks such as Table Mountain National Park, West Coast National Park, Addo Elephant National Park and the Garden Route National Park.

**Age**

The research revealed that the younger respondents rated hard and soft adventure activities as more important. This correlates with previous research findings on age regarding the adventure market (Loverseed, 1997; Sung, 2004; Grant, 2011; Tangeland *et al*., 2013). The implication is that SANParks must explore the direct marketing of adventure products to younger (39 years and younger) tourists. Identifying appropriate media should be explored also, for example the use of social media.

**Marital status**

The results showed that marital status affects respondents' adventure activity preferences and concurs with previous research (Sung, 2004; ATTA, 2010). Respondents who are single or live together prefer adventure activities that involve heritage and adventure sport. Since the unmarried respondents prefer heritage activities, such as archaeological and geological tours and adventure sports, such as kayaking, mountain biking, trail running, rock climbing, white-water rafting and caving, the implication for SANParks is that it needs to explore the possibility of introducing these activities, as very few of these activities are currently provided in national parks. Parks such as Golden Gate, Table Mountain and Camdeboo national parks would be suitable for mountain climbing due to the mountains found in these parks. Tsitsikamma (marine national park), Wilderness (marine national park) and Augrabies Falls national parks (Orange River) are suitable for kayaking.

Geographical location or place of residence (in this case province of residence) has an influence on adventure activity preferences (hard adventure activities were more important for Western Cape residents). The results, therefore, contribute to the existing literature (Jönsson & Devonish, 2008) regarding the influence of place of origin, and confirm that respondents originating from different provinces (regions) within one country have different adventure preferences. Jönsson and Devonish (2008) found that nationality has an impact on adventure activity participation. However, the influences of the various regions/provinces were not determined. The implication is that national parks situated in the Western Cape could consider partnerships with established adventure tourism product owners to conduct adventure activities in parks, such as Table Mountain, Wilderness, Agulhas and Bontebok national parks. In this way, parks will have established companies to provide quality adventure products without huge development expenses.

The results revealed that more respondents who were non-Wild Card members prefer different activities to the respondents who are Wild Card members. The implication is that SANParks can consider activities for both groups. Hard adventure activities could be marketed among visitors to national parks who are not Wild Card members in national parks that can accommodate these activities. Therefore, based on this sample, it could be considered important that hard adventure activities, such as wilderness training and survival courses and adventure sports activities be explored for possible implementation in the future development of activities in national parks.

## CONCLUSION

The aim of the research was to determine the adventure activity preferences of tourists to national parks to determine possible new adventure activities for national parks that can be used as a new source of income. One of the reasons for conducting the research is the growth of adventure tourism experienced globally. In addition, the budgets of national parks are under severe pressure, which implies that new sources of income should be found in order to fund constant needs. National parks are well placed based on their national resources to benefit from growth in adventure tourism by offering tourists a greater variety of adventure products. This innovative research attempts to fill this gap. Specific soft and hard adventure activities were identified, such as field-guide training and wilderness camping (innovative soft adventure eco-activities), and survival and wilderness training and survival games (hard eco-adventure activities) that could possibly be considered by SANParks.

The study also identified socio-demographic and behavioural variables that could be useful to identify potential markets for both soft and hard adventure activities in national parks. These include gender, age and home language (socio-demographic aspects) when compared with the hard and soft adventure activities, as well as the influence of socio-demographic and behavioural variables on adventure activity preferences in national parks. This research makes a valuable contribution to the existing literature on adventure activities and furthermore provides practical recommendations to SANParks to consider. Future research could include the identification of park-specific adventure activities based on each park's unique attributes. In addition, it is recommended that future research needs to be conduct among the different adventure organisations in order to determine their needs, preferences and requirements for adventure activities in national parks.

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(*Subject Editor: Prof Maya van Gent*)