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SENSATION SEEKING PERSONALITY TRAITS OF RECREATIONAL SCUBA DIVERS

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Key words
Air, recreational diving, personality.

Abstract

Objectives
The sensation seeking personality traits of recreational scuba divers are poorly understood. This study aimed to use a validated measure to determine the extent to which divers' sensation seeking traits differ from the general population.

Methods
Thirty experienced recreational scuba divers were enrolled. Their sensation seeking traits, including thrill and adventure (TAS) and experience seeking (ES), disinhibition (DIS) and boredom susceptibility (BS), were assessed with the Sensation Seeking Scale, Form V.

Results
The divers scored significantly higher than the reference population on both the TAS and ES sub-scales ($p<0.001$ and $p=0.003$, respectively), and significantly lower ($p=0.010$) on the BS sub-scale. There was a trend for the divers to score lower on the DIS sub-scale ($p=0.076$). There was no difference between the divers and the reference population on "total" sensation seeking score ($p=0.511$).

Discussion
Divers in the study were thrill, adventure and experience seekers but not overall sensation seekers. The TAS and ES findings are consistent with the results of other studies of individuals who engage in risky sports. The DIS, BS and "total" score findings do not show this consistency and are attributed to the older age and more "establishment" personalities of our divers. Larger studies are required to further investigate diver sensation seeking and to compare subgroups within the diving population.

Introduction

In an extensive review of the role of personality in sports, Eysenck et al. concluded that those who engage in sports tend to be more extroverted than non-participants.[1] The relation between extroversion and sports is said to be mediated by narrower traits like sensation seeking, assertiveness, competitiveness, impulsiveness and high pain thresholds.[2]

Previous research has demonstrated that individuals who are currently active in risky sports, such as climbing, skiing and parachuting, are also likely to manifest higher levels of the psychological trait known as sensation seeking.[2-9] This trait has been characterised as a tendency to seek novel experiences that are varied, complex, lead to intense subjective feelings (e.g. a "rush"), and are associated with higher rates of risk-taking (physical, social, legal and financial).[2]

One might expect that recreational scuba divers, as a group, would also have elevated levels of sensation seeking in so far as scuba diving could reasonably be classified as a "risky" sport.[10] Not only are elevated rates of morbidity and mortality associated with diving related injuries (e.g. decompression illness, gas embolism and barotrauma) but exposure injuries (e.g. hypothermia, drowning and marine animal injuries) also occur.[10]

Although we were able to identify only one small study on the sensation seeking psychological characteristics of scuba divers,[4] one would expect that recreational divers, like other participants in risky sports, would score highly on measures of sensation seeking. The primary aim of this descriptive study is to use the Sensation Seeking Scale, Form V (SSS)[11] to determine the extent to which scuba divers differ from the general (reference) population on four components of sensation seeking.

Methods

The study was conducted in the Hyperbaric Unit of the University of Pittsburgh Medical Center (UPMC), Pennsylvania, USA, and approved by the Institutional Review Board of the University of Pittsburgh.

It was part of a larger study examining drugs in the hyperbaric environment that ran from March 1998 until March 1999. In this part of the study, subjects were examined under normobaric conditions and after the ingestion of one of the study drugs (pseudoephedrine, dimenhydrinate, placebo). These drugs were unlikely to affect the subjects' sensation seeking responses.

Thirty subjects were recruited, by word of mouth, from the local dive clubs and the UPMC medical and nursing staff. The subjects were required to be active scuba divers aged 18 years or more. Demographic and diving experience data was collected from each subject using a standard proforma.

Sensation seeking was assessed with the SSS developed by Zuckerman and his associates.[11] This self-administered questionnaire comprises 40 pairs of forced-choice alternatives and subjects are asked to choose which of the two statements best describes their interests and preferences. For example:

Item 3
a) I often wish I could be a mountain climber
b) I can't understand people who risk their necks climbing mountains

Item 24
a) I prefer friends who are excitingly unpredictable
b) I prefer friends who are reliable and predictable.

Items are assigned to one of four sub-scales that were previously identified empirically using factor analysis techniques. Each sub-scale is composed of 10 item pairs. The "Thrill and Adventure Seeking" (TAS) scale includes items that reflect a desire to engage in sports or other physically risky activities that yield sensations of speed or other atypical physical sensations (e.g. defy gravity). The "Experience Seeking" (ES) scale focuses on the desire to seek intellectually stimulating experiences (e.g. travel) or engage in socially nonconformist or rebellious activities. The "Disinhibition" (DIS) scale measures interest in engaging in exciting and/or unconventional social activities (e.g. wild uninhibited parties and excessive alcohol or drug use). The "Boredom Susceptibility" (BS) scale incorporates items that deal with routine or boring activities or people. The psychometric properties of the SSS are good, with internal reliabilities ranging from 0.56 – 0.65 (BS) to 0.77 – 0.82 (TAS) and 0.83 – 0.86 (total score). The three-week test-retest reliability is 0.94. The reference population, against which other groups are compared, is a group of 1,217 university psychology students. A detailed summary of the SSS can be found elsewhere.[2]

The SSS provided four sub-scale raw scores (0 to 10) and a total raw score (0 to 40). These raw scores were converted to T scores using the published norms.[2] These data were compared with the reference population values (mean ± SD: 50 ±10) using 1-sample t-tests (df = 29, two-tailed, level of significance 0.05).

It was considered that intelligence might be a confounder in this study. Hence, an estimate of each subject's intelligence quotient (IQ) was made using two sub-tests of the Wechsler Adult Intelligence Scale, Revised (WAIS-R).[12] The "Vocabulary" sub-test assessed the subjects' comprehension of 35 words. The "Block Design" sub-test assessed visuo-constructional and problem-solving abilities as subjects were timed while arranging blocks to correspond to a printed design.

Results

There were 19 male and 11 female study subjects. Mean age was 38.1 ± 10.9 years (range: 24-68). The mean years of diving was 8.9 ± 7.3 years (range: 1-30) and the mean number of dives was 188 ± 317 (range: 6-1,460). Mean subject IQ (adjusted for age) was 122.0 ± 10.8 (range: 97-139).

TABLE 1

MEAN SUBJECT SENSATION SEEKING SCALE AND SUB-SCALE RAW SCORES AND STATISTICAL ANALYSES (N=30)

Scale[1]	Raw score (mean±SD)	T score[2] (mean±SD)	Mean difference between subjects and reference population T scores	p value
TAS	8.5±1.5	55.2±5.5	+5.2 (95% CIs: 3.1, 7.3)	0.000
ES	6.1±1.7	54.5±7.6	+4.5 (95% CIs: 1.6, 7.3)	0.003
DIS	5.1±2.5	46.7±9.9	3.3 (95% CIs: -7.0, 0.4)	0.076
BS	2.7±1.6	46.0±8.1	-4.0 (95% CIs: -7.0, -1.0)	0.010
SSS	22.5±5.4	51.1±9.1	+1.1 (95% CIs: -2.3, 4.5)	0.511

Notes

1 TAS = thrill/adventure seeking, ES = experience seeking, DIS = disinhibition, BS = boredom susceptibility and SSS = sensation seeking scale (total of the four sub-scales)

2 The T score is calculated from the raw score. Reference population T score = 50±10

The results and the statistical analyses are presented in Table 1. The divers scored significantly higher than the reference population on both the TAS and ES sub-scales ($p<0.001$ and $p=0.003$, respectively), and significantly lower ($p=0.010$) on the BS sub-scale. There was a trend for the divers to score lower on the DIS sub-scale ($p=0.076$). There was no difference between the divers and the reference population on "total" sensation seeking score ($p=0.511$).

Discussion

As a group, our sample of recreational scuba divers was more likely than the reference population to endorse items indicative of seeking thrills, adventures and new experiences. These results are consistent with the results of other studies of individuals who engage in risky sports (e.g. bungy jumping, ski jumping and mountain climbing).[3-9] For example, Breivic found mean TAS scores of 8.3-9.1 and mean ES scores of 6.4-8.6 among white water canoeists, elite expedition climbers and parachutists.[4]

However, in contrast to these other high risk sports groups, our scuba divers scored significantly lower on BS than the reference population and showed a trend towards lower scores on DIS. One possible reason for these disparities may be demographic. Our sample tended to be older than most high risk sports participants. Also, most of our subjects were professionally employed and had a high IQ. Hence, the group may not have been representative of recreational divers overall.

It is plausible that our subjects were more "mainstream" or "establishment" personalities who would be less likely to endorse the types of items that are characteristic of high DIS scores (e.g. "enjoying the company of swingers" or "keeping the drinks full is the key to a good party") and more likely to endorse items that are characteristic of low BS scores (e.g. "I enjoy looking at home movies and travel slides" or "I enjoy spending time in the familiar surroundings of home").

Our failure to find a significant increase in total sensation seeking score was unexpected. Other studies have found high total scores among participants of risky sports.[2-9] Breivic found total scores of 24.8-28.7 in his study of canoeists, climbers and parachutists.[4] Although the total score for divers in his study (22.0) was similar to ours, Breivic examined only five divers.[4] Our finding may be an artefact of the additive nature of the total score calculation: the significantly elevated TAS and ES scores were cancelled out by the significant or near significant lower than normal DIS and BS scores.

This study had several limitations. Most of the subjects were experienced recreational scuba divers as evidenced by the number of years they had been diving and the large number of dives they had done. However, the group may not have been representative of experienced recreational divers overall. Also, the small sample size may have further contributed to selection bias. Finally, the student population used in the SSS to determine the reference standard may not have been representative of the general population.

It is recommended that the study be repeated using a much larger sample size and with subjects enrolled from populations with differing demographic, geographic and experience characteristics. Alternatively, a moderate number of divers could be compared to a control group matched for age, gender, education and socio-economic status. The sensation seeking personality traits of novice and experienced divers should be compared. It is well recognised that only a small proportion of those who

complete scuba diving training continue as active divers for more than 12 months. It may be that personality traits contribute in selecting out divers who continue in the sport. Furthermore, a comparison between male and female divers would be of interest. It has been shown that, in activities where most of the volunteer participants tend to be men (like scuba diving), the women who do participate score much higher on the SSS score than other women, and the differences are larger than those found between male participants and male norms.[2]

Conclusions

Divers in this study were thrill, adventure and experience seekers but not overall sensation seekers. Larger studies are required to further investigate diver sensation seeking and to compare subgroups within the diving population.

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