

SENSATION SEEKING, GENDER AND SPORT PARTICIPATION AMONG SOUTH AFRICAN STUDENTS

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ABSTRACT

Amongst the personality dispositions, sensation seeking (SS) has special relevance in explaining and predicting types of risk-related behaviours, such as participation in sports containing high risk and even danger. The prevalence of risk-taking in the context of sport, and the impact of gender, was the objective of the present study. All subjects were administered the Sensation-Seeking Scales of Zuckerman Form II and V (SSS-II & V). The results show that male sports participants are higher risk-takers than female participants, thus concurring with the general profile of male and female tendencies concerning sensation seeking behaviour. The resulting data are discussed and explained within the context of Zuckerman's sensation-seeking model.

Key words: Sensation seeking; Gender; Age; Culture; Sport.

INTRODUCTION

Optimal arousal as a behavioural phenomenon was observed by Wundt (1893), suggesting a curvilinear relationship between affective reactions and intensities of stimulation. Nearly sixty years later, Leuba (1955) maintained that organisms *prefer* some intermediate range of stimulation experienced as optimal for that organism. Berlyne (1960: 194) stated that “for an individual organism at a particular time there will be an optimal influx of arousal potential, deviating in either an upward or downward direction from this optimum, and will be drive inducing”. The preferred optimal level varies among individuals, ranging from high to relatively low. Those with the inclination for high arousal tend to prefer novelty, change, variation, excitement, uncertainty and even risk taking, contrary to those preferring relatively low or stable levels of optimal arousal.

Zuckerman (1979, 1994, 2000) extended the optimal arousal concept to include variations of sensation seeking behaviours which moved beyond the optimal level of arousal; including the seeking of varied, novel, complex and intense sensations and experiences (Zuckerman, 1994), together with the proneness to take physical, social, legal and financial risks for the sake of such experiences. Risk taking constitutes involvement in any kind of behaviour perceived as uncertain regarding the positive or negative outcomes for oneself or for others. Thus, individuals who have a strong need for varied, novel, and complex sensations and experiences are labeled as high sensation seekers. To conclude: people have a basic need for excitement, and one way or another, they will fulfil it (Zuckerman, 2000).

Humans are distinguished as low or high sensation seekers. Low sensation seekers tend to be over-aroused and tend to avoid excessive stimulation in order to attain a level optimal for effective functioning. High sensation seekers, however, are characteristically under-aroused and seek novel and varying stimulation to raise their arousal to a level optimal for their functioning (Schwartz *et al.*, 1978). Apart from kinds of sensation seeking that are expressed through physical action (thrill and adventure), there are those expressed through the casting off of inhibitions in social settings (disinhibition), or through deviant lifestyles (experience-seeking), or through the pursuit of change for change's sake (boredom susceptibility) (Zuckerman, 2000).

High risk experiences, or living on the edge, are associated with marijuana smoking, alcohol abuse, drug use, risky sex, gambling, and sports-orientated experiences such as scuba diving, caving, rugby, hang-gliding, sky-surfing, free flying, aerial ballet, motor or bike racing, bungee-jumping, parachuting, white water rafting, kayaking, and others. Some of these behaviours manifest in tandem with each other, such as smoking, drinking, taking drugs and engaging in sexual activities. Both male and female students who use or experiment with one of them, also tend to do the others. Zuckerman (2000: 8) concluded "...that people have a basic need for excitement - and one way or another, they will fulfil it".

Since 1960, Zuckerman has designed six Sensation-Seeking Scales (SSS) of which Form II (SSS-II) and Form V (SSS-V) were chosen in the present studies, assessing four inter-related dimensions of sensation seeking. These instruments each comprised the following four dimensions: *Thrill and Adventure-Seeking (TAS)* - the desire to engage in sports and activities involving danger or speed; *Experience-Seeking (ES)* - the desire for unusual sensations or experiences associated with a nonconformist life style; *Disinhibition (Dis)* - the desire for social and sexual experiences as expressed in social drinking, partying, and a variety of sexual partners; *Boredom Susceptibility (BS)* - measuring aversion to repetition, routine and dull people; and *The Total Score (TS)* - derived from the summation of the four subscale scores (Schroth & McCormack, 2000).

GENDER

Sensation seeking spans across gender, age and cultural differences. The general perception exists that males are higher risk- and sensation seekers than females. Research by Zuckerman *et al.* (1964), using the SSS-II, and by Farley and Cox (1971), revealed no differences regarding gender and sensation seeking. However, using the SSS-IV, Kurtz and Zuckerman (1978), found that black and white female students scored significantly lower on the TAS, Dis and BS subscales than males. Zuckerman *et al.* (1978) and Zuckerman (1979) utilizing the more refined SSS-V, found that men had higher scores on all four subscales, as well the TS, with the largest differences manifesting on the Dis subscale consisting of items assessing the need to surpass social constraints through social drinking, partying and preference for sexual variety. Schroth (1990) using the SSS-V, found that men had higher scores on the TAS, Dis and BS, as well as the TS, but no significant sex differences on the ES subscale were found.

Gundersheim (1987), in a study on university athletes and non-athletes, found that the largest differences between males and females existed on the Dis subscale, followed by the TS, BS, ES and TAS, ascribed to differences in role stereotypes. Hartman and Rawson (1992) studied

sensation seeking in male and female athletes and nonathletes, using the latest version of the SSS, namely Form VI and found that males scored significantly higher than females on all subscales: Experience-Thrill and Adventure-Seeking: E-TAS; Intensions-Thrill and Adventure-Seeking: I-TAS; Experience-Disinhibition: E-Dis; Intentions-Disinhibition: I-Dis; and the Total Score: TS, regardless of athletic participation. Young males in their adolescent and directly succeeding years were the greatest risk-takers, as reflected in their high rates of auto accidents, alcohol and drug use, sex and antisocial behaviours (Zuckerman, 2000). Regarding participation in sport, the question arises whether differences in sensation seeking also manifest between males and females?

GENDER AND CULTURE

Magaro *et al.* (1979) found that among Italian college students, males and females did not differ with respect to SSS-IV scores. The results also revealed that Italian female college students are higher sensation seekers than Japanese and Thai female college students, but were similar to American students. However, Italian male college students appeared to be less sensation seeking than their American counterparts, and similar to Thai and Japanese males. The failure to find gender differences in the sample of Italian college students, differs from other cross-cultural studies, which, according to Magaro *et al.* (1979) may be ascribed to the possibility that male and female college students were differentially affected by exposure to education and socio-economic factors.

Ball *et al.* (1984) collected Australian data from 335 females and 363 males, distributed over the age range 17-60 years. They found that males showed higher SSS-V scores than females, replicating Canadian, American and English data. TAS scores showed this difference most clearly. However, the Total Score (TS) displayed significant gender-by-age interaction, a result differing most markedly from previously published findings, with females in the 30-39 age group recording higher scores than the males in the same age group. These results strongly support the wisdom of control for age in research on sensation seeking and gender differences (Ball *et al.*, 1984). Similarly, Zuckerman *et al.* (1978) were cautious about generalizing the cross-national and cross-gender correspondence in SSS dimensions to other cultures, particularly where translated scales are required.

Ridgeway and Russell (1980) report results from Canadian subjects where females scored lower on the TS, Dis, BS and the TAS. Arnett and Ballejensen (1993) found that among Danish adolescents, gender was significantly related to most types of risk behaviour, with males more likely than females to take risks, an indication of gender differences in sensation seeking. The above ascribe gender differences to patterns of socialization factors within a specific culture, especially restrictions within the socialization environment. Less restrictive or broad socialization environments, however, facilitate the emergence of sensation seeking types of behaviours.

Torki (1993) provided evidence of cultural differences in sensation seeking. The SSS-VI (Arabic version) was administered to 254 male and female undergraduates from Kuwait University. Male students had significantly higher scores on the Experience-Thrill and Adventure-Seeking (E-TAS), Experience-Disinhibition (E-Dis) and Intention-Disinhibition (I-Dis) subscales. Torki (1993) concluded that these results were largely congruent with

findings in various other cultures, except for a similar study (also using SSS-VI) administered to US students, undertaken by Zuckerman (1984). On all four subscales and the Total Score, the American subjects had higher scores for males and females, than the Kuwait students. These findings were expected, because socialization of males and females in the Western culture differs significantly from that in the Arabic culture. Many of the SSS-VI items are more suitable to the Western culture, especially Dis subscale items, such as being in the company of people who are very casual about sex; who sometimes switch partners; having sex in public, where others were doing the same thing; and going to a large rock concert. The differences between American and Kuwait students could be interpreted as evidence for cultural differences in sensation seeking (Torki, 1993). Similarly, results obtained from other cultures, may not be congruent to sensation seeking patterns in South Africa.

The general pattern emerging from studies in different cultures during the sixties and early seventies, is that males are higher sensation seekers than females (Waters & Pincus, 1976; Zuckerman, 1971, 1972). This tendency was found among Thai subjects (Berkowitz, 1967), Spaniards (Perez & Torrubia, 1985), English from Britain (Furnham, 1984; Zuckerman *et al.*, 1978), Americans (Zuckerman, 1978), and Japanese (Ohkubo, 1972). The subscales on which differences occur, however, reveal cultural differences, mostly ascribed to differences in value systems and practices of socialization. More research in the field of cross-cultural comparisons is needed.

The purpose of the present study is to extend the cross-cultural research on gender and sensation seeking to selected South African populations.

METHOD

Two independent studies were conducted.

First study

Subjects - The first study was undertaken during Spring 2000 involving 289 randomly selected dormitory students from Potchefstroom University for Christian Higher Education: 149 (52%) males and 140 (48%) females, and consisting of 92% Afrikaans and 8% English-speaking students, a reflection of the composition of the University's total student population.

Assessment - The traditional Sensation-Seeking Scale Form II (Zuckerman *et al.*, 1964) was used. Senior and pre-trained students personally delivered and collected the questionnaires.

Procedures - All subjects were met individually and briefed about the nature and purpose of the study, and confidentiality and anonymity were assured. The questionnaire with an envelope was left with each subject and collected later the same evening. Each subject completed the requested demographic data (gender, home language, age) and the Afrikaans or English version of the SSS-II.

Second study

Subjects - The second study was conducted during Autumn 2001 and comprised four convenient samples: 85 full-time recreation students; 25 rugby players from the University's first and second teams; 16 rugby players representing the Western Transvaal provincial region; 51 scuba divers and 36 parachutists, thus a total of 213 of which 143 (67%) were males and 70 (33%) females; 76% were Afrikaans and 24% English-speaking, their ages ranging from 18 to 35 years.

Assessment - Zuckerman's Sensation-Seeking Scale, Form V (SSS-V), developed by Zuckerman *et al.* (1978), was used in the present study. Form V was constructed using factor analysis and consisted of four different subscales (TAS, ES, Dis, BS) of ten items each, totaling 40 items (TS).

Procedures - Subjects were met in groups and in a neutral atmosphere to assure objective and valid assessments (Schroth, 1990). All subjects were briefed about the nature and purpose of the study; confidentiality and anonymity were assured. The researchers were present to answer questions or solve problems that may arise. Each subject completed the requested demographic data (gender, home language, age) and the English version of the SSS-V. The scuba divers, however received their questionnaires by mail, accompanied by a letter in which the purpose of the study was stated, and their co-operation requested. A total of 136 questionnaires were mailed, with a final response of 51 (38%). The specific purpose of the scale was not explained to the subjects beforehand to avoid possible bias. Subjects were told that they were participating in a study on individual differences and personality. After completion, they were informed about the real nature of the study.

RESULTS

First study: *SSS-II*

In the first analysis it was determined whether an interactive relationship exists between low and high sensation seekers and gender. The combined mean score was used as the cutting point for dividing low from high sensation seekers. The 2 x 2 ANOVA revealed a significant interaction, $F(1,1)=25.33$, $p<0.005$ between sensation seeking and gender. The post-hoc t-test revealed that male students had significantly higher sensation seeking scores than females. Female students showed greater variance in their Total Scores (TS) than male students.

Second study: *SSS-V*

In this study, two gender comparisons were made: one between students (studying in recreation - $N=85$, plus male participants in the University's first and second rugby teams - $N=25$) and the other between predominantly adult participants in provincial rugby ($N=16$), scuba diving ($N=51$) and national parachuting ($N=36$), defined as the Student Group and the Sports Participant Group.

Students

It was expected that male students would obtain higher sensation seeking scores on the Dis, BS, TAS subscales and the TS, and that female students would score higher on ES. The results (Table 2) generally support this expectation, but statistical significance ($p < 0.05$) was only obtained regarding the Dis dimension. Female students had significantly higher scores on the ES dimension ($p < 0.01$) than male students. Except for TAS, mean scores were generally low, thus reflecting a student population of relatively medium to low sensation seekers.

TABLE 1. MEANS, STANDARD DEVIATIONS AND T-VALUES (FORM II) OF MALE AND FEMALE UNIVERSITY STUDENTS

Gender	N	Mean	SD	t-value
Male	132	17.63	5.00	
Female	113	15.80	5.19	2.80**

** = $p < 0.01$

TABLE 2. MEANS, STANDARD DEVIATIONS AND T-VALUES (SSS-V) OF MALE AND FEMALE UNIVERSITY STUDENTS

Dimensions of SSS-V	Males (n=63)		Females (n=47)		t-Value
	M	SD	M	SD	
Dis	3.71	2.25	2.85	1.87	2.20*
BS	3.43	1.37	3.38	1.85	0.14
TAS	7.25	1.58	6.94	2.00	0.90
ES	3.25	1.61	4.09	1.65	2.64**
Total (N=110)	17.65	4.19	17.26	4.74	0.46

* = $p < 0.05$

** = $p < 0.01$

Sports participants

Participants in rugby, scuba diving and parachuting are generally regarded as relatively high sensation seekers, as reflected by the results in Table 3. However, it was expected that even within a population of high sensation seekers, males would have higher scores on Dis, BS, TAS and TS, with females scoring higher on ES. Except for ES, males had higher scores on the other four subscales (Table 3). The general pattern, in which differences are manifested, is very similar to the student findings.

TABLE 3. MEANS, STANDARD DEVIATIONS AND T-VALUES (SSS-V) OF MALE AND FEMALE RUGBY PLAYERS, SCUBA DIVERS AND PARACHUTE JUMPERS

Dimensions of SSS-V	Males (n=80)		Females (n=23)		t-Value
	Mean	SD	Mean	SD	
Dis	4.70	2.93	3.65	2.64	1.54
BS	4.00	1.75	3.65	1.50	0.87
TAS	8.21	1.69	7.48	2.19	1.71
ES	4.74	1.73	5.00	1.98	0.62
Total (N=103)	21.65	5.61	19.78	5.85	1.39

DISCUSSION AND CONCLUSION

There is no simple explanation for why males tend to have higher scores on the Sensation-Seeking Scales (SSS) than females. There are many explanations, like greater body size and strength, which give males an advantage over females in TAS activities after puberty; it is not surprising that males typically show a higher peak of TAS than females.

Disinhibition (Dis) is the subscale that shows the largest gender differences. Although these differences are probably influenced by social factors, such as role socialization and expectations, this particular difference could also represent the operation of biological factors. Females are higher on monoamine oxidase (MAO), but they also tend to be augmenters. Zuckerman *et al.* (1980: 208) investigated biological correlates of sensation seeking and asserted that "the hormonal differences between males and females are equivocal, since high male sensation seekers are higher on both androgens and estrogens". Zuckerman (1979) suggested that there could be a biological basis for differences in sensation seeking, while also stating that cultural, social and familial factors must also be considered.

Arnett (1994) considered sensation seeking as a predisposition, a potential, which may be expressed in a variety of ways depending on other aspects of the individual's personality, especially depending on how the socialization environment guides, shapes, or suppresses that predisposition. Although sensation seeking is inherently related to physical and social risk-taking, Arnett (1994) argues that it is more generally a quality of seeking intensity (rather than complexity) and novelty in sensory experience, which may be expressed in multiple areas of a person's life. Such behaviours can be antisocial as well as socially acceptable, depending largely on the individual's social environment. Differences ascribed to gender groups across cultures, are seen as to reflect different kinds of socialization rather than to associate them with biological processes (Ball *et al.*, 1984).

Arnett (1994: 294) found adolescent and adult males to be higher in sensation seeking than females, and comments: "It may be tempting to suggest a biological basis for this difference ...

from infancy onward biological differences between males and females are inextricable from socialization". One area for future research of sensation seeking is the examination of the ways in which males and females may have their sensation seeking tendencies socialized into different avenues, resulting in the expression of sensation seeking in gender-related types of behaviour.

Items comprising the TAS subscale, may favour perceived and/or real participation in activities such as sky-diving, mountain climbing, scuba diving, water skiing, surfboard riding, diving off the high-board, fast skiing, and (plane) flying. Apart from their psychological culturally based appeal, participation and risk experiences also have a strong physical competence base relying on physical strength, agility, power, speed, endurance and the real or perceived competence to handle physical risk and danger. In general, males are biologically better equipped to handle these types of biologically anchored risks, and therefore also their willingness to participate in such activities. The sport world shows clearly that males are superior as far as speed, strength, power and the withstanding of physical injuries are concerned. Thus having an impact on risk perceptions of both males and females, as assessed by the various Sensation-Seeking Scales, especially those activities included in the TAS subscale. If high-risk target activities of a physical nature are selected, containing the same risk potential irrespective of gender differences, then the chasm of sensation seeking between males and females may not be as wide as presently revealed by the various sensation seeking measuring instruments.

Another area of concern is that many individuals participate in multiple high-risk sensation seeking activities. Although the present study did not examine this aspect of participation preferences, future research should attempt to investigate the impact of multi-sport involvement as it relates to various predictors. In addition, it should be noted that a number of high-risk activities vary in their degree or intensity of inherent risk. For example, playing rugby can be considered less dangerous than participation in scuba diving, depending on the experiences and competencies of those being assessed.

Gender may not be the best way to approach the underlying question of participation in high-risk activities. Perhaps a better method would be to examine the individual's level of masculinity or femininity. Rather than just being *male* and *female*, perhaps assessing the respondent's level of masculine traits and feminine traits would provide a different, and more informative perspective with regard to participation in high-risk activities. Research examining masculinity vs. femininity was stimulated by the development of the Bem Sex Role Inventory (Bem, 1974). This particular scale measures the degree to which an individual exhibits feminine, masculine, or neutral personality characteristics. Based on their responses to these items, a classification of masculine, feminine, androgynous, or undifferentiated is assigned. By examining gender in this manner, perhaps a clearer understanding could be gained of the aforementioned relationship.

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