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Development of a Psychometrically Sound Measure of Sensation Seeking

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Abstract

Previous research on sensation seeking indicates that the measurement of this construct is mired in controversy. Researchers have questioned the psychometric properties of common sensation seeking scales, including the Sensation Seeking Scale version 5 (SSS-V). The SSS-V has been deemed psychometrically inadequate in peer-reviewed research because it uses outdated and biased language and a poor response format, as well as measures the behavior it predicts and has unstable factor structures. The aim of this study was to address concerns by constructing a psychometrically sound measure of sensation seeking, the Sensation Seeking Personality Type Scale (SSPT). The SSPT separates intent from experience, uses a Likert-type response format, and does not contain idiomatic or biased language. The SSPT consists of 3 subscales, Experience Seeking, Thrill Seeking, and Disinhibition, all having reliable factor structures. Additionally, the SSPT was a significant predictor of outcomes commonly associated with being a high sensation seeker. These results, taken in conjunction with improvements made to the format and content indicate that the SSPT is a more psychometrically sound measure of the sensation seeking personality type than the SSS-V. Ongoing studies to further validate the SSPT scale are needed; however, the results to date suggest that the SSPT is a reliable and valid measure of sensation seeking.

Introduction

Although a multitude of research has been conducted to define sensation seeking, the measurement of sensation seeking is mired in controversy, with researchers questioning the psychometric properties of the scales commonly used to measure the personality trait. Since 1964 researchers have been developing and revising scales to measure sensation seeking. The most popular scale, the fifth version of the Sensation Seeking Scale (SSS-V; Zuckerman, 1994) has been deemed psychometrically inadequate in peer-reviewed research.

The specific issues with the SSS-V are that it uses outdated and biased language and a poor response format, as well as measures the behavior it predicts and has unstable factor structures. On the SSS-V respondents are asked to choose one of two options per item that best describes them. This results in binary data that is summed to create factor scores, however, many individuals completing the scale find that choices are not mutually exclusive or that neither adequately represents them. Additionally, researchers report significantly different factor structures with as many as 14 rotated factors within the 40 items of the SSS-V (Ball et al., 1983; Rowland & Franken, 1986), rather than the four that the author describes. Haynes and colleagues (2000) had to perform significant model modifications while completing a confirmatory factor analysis of the SSS-V. The researchers had to correlate multiple pairs of error residuals within and across factors to achieve adequate model fit. This suggests multidimensionality and the inability to correctly identify the latent factor structure (Reise et al., 2000) especially when the scale is comprised of dichotomous items, such as the SSS-V (Waller, 1999). Outdated and biased language is likely best illustrated by providing an example item: I would like to meet some persons who are homosexual (men or women) versus I stay away from anyone I suspect of being “gay or lesbian”. Finally, the SSS-V contains questions about both future desires and past experiences. For example, the SSS-V asks whether a person would like to/has already tried marijuana, or would never smoke marijuana. It is easy to predict drug use with a personality scale that contains items regarding drug use. Not only does this weaken statements regarding the strength of the relationship between sensation seeking and risky behavior, it makes it difficult to determine moderating factors of this relationship.

The aim of this study was to address concerns by constructing a psychometrically sound measure of sensation seeking, the Sensation Seeking Personality Type Scale (SSPT).

Method

Participants

The participants in this study were 504 undergraduates enrolled in psychology courses at Old Dominion University. They were diverse in age and ethnic/racial background (Age M = 21.36, SD = 4.08; Ethnicity/Race African American = 25.6%, Caucasian = 59.3%, Hispanic or Latina/o = 3.4%, Other = 11.7%). All of the participants completed the study for course credit.

Measures and Procedures

The test battery consisted of the SSPT, the SSS-V, the Behavioral Inhibition/Behavioral Activation (BIS/BAS) Scales, and an inventory of risky behaviors that participants have engaged in also created by the researchers of this study called the Risky Behavior Inventory.

This current version of the SSPT started with an initial pool of 59 items written by the researchers, those the ideas contained in some items were adapted from previous sensation seeking scales. This is the 4th iteration of the SSPT, which started out with a pool of 260 items. This current study is part of the ongoing process of scale development. The researchers continue to improve the scale, primarily working to improve the Disinhibition subscale.

All of the scales used in this study were translated to computerized versions. All participants completed the test battery on computers, either remotely through the internet or in a typical laboratory setting within the Psychology Department at Old Dominion University.

Statistical Analyses

Data were subjected to both Exploratory (EFA) and Confirmatory (CFA) Factor Analyses by randomly dividing the 504 participants into 2 separate samples. In order to determine the psychometric properties of the SSPT, reliability analyses were conducted using Cronbach's α . Additionally, validity analyses were conducted. More specifically, Pearson correlations were calculated between the SSPT and the SSS-V and BIS/BAS to assess convergent validity. Pearson correlations were also calculated between the SSPT and risky, alcohol, and drug use behaviors to determine predictive validity. The EFA and reliability and validity analyses were conducted using SPSS 15.0. The CFA was conducted using EQS 6.1.

Results

The EFA revealed 3 factors, Experience Seeking, Thrill Seeking, and Disinhibition, consisting of 5 items each. See Table 1 for the specific items, their means and standard deviations, and their factor loadings in both the EFA and CFA. The 3 factors explained 45.9% of the total variance. The 3 factors were significantly correlated in both the EFA and CFA analyses, so oblique rotations were used to determine the final factor loadings. In the EFA the subscale correlations were: Experience Seeking and Thrill Seeking $r = 0.44$, Thrill Seeking and Disinhibition $r = 0.53$, and Experience Seeking and Disinhibition $r = 0.15$. In the CFA the subscale correlations were: Experience Seeking and Thrill Seeking $r = 0.53$, Thrill Seeking and Disinhibition $r = 0.66$, and Experience Seeking and Disinhibition $r = 0.35$.

The CFA indicated adequate model fit with a Satorra-Bentler adjusted $\chi^2 = 164.3$ on 86 degrees of freedom, a robust CFI = 0.92, and a Robust RMSEA = 0.06. This was after allowing one correlated error residual between "The only way for me to have fun is to do risky things" and "I enjoy participating in unsafe activities", which is theoretically plausible and improved overall fit. This indicates that the factor structures were stable across the two subsamples.

The Cronbach's α 's for each subscale were acceptable: Experience Seeking $\alpha = 0.80$, Thrill Seeking $\alpha = 0.84$, and Disinhibition $\alpha = 0.73$.

The SSPT total score was significantly correlated with the total SSS-V: $r = 0.69$, $p < 0.001$ and the total BAS: $r = 0.42$, $p < 0.001$. The SSPT total score was significantly and negatively correlated with the total BIS: $r = -0.40$, $p < 0.001$. The SSPT total score significantly and positively correlated with the number of risky activities (not including alcohol and drug use): $r = 0.42$, $p < 0.001$. The SSPT total score also significantly and positively correlated with a measure of alcohol abuse: $r = 0.32$, $p < 0.001$, and a measure of drug use: $r = 0.31$, $p < 0.001$.

Table 1: SSPT Items, Means Standard Deviations, and Factor Loadings

Item	Subscale	M (SD)	EFA Factor Loading	CFA Factor Loading
<i>Experience Seeking</i>				
I love challenging myself with new and interesting tasks.		3.9 (0.7)	0.74	0.56
Variety is what makes life interesting.		4.1 (0.8)	0.69	0.55
It is important to me to try as many new things as I can.		3.6 (0.9)	0.64	0.83
I enjoy going to places that I have never been.		4.3 (0.7)	0.60	0.50
I like to experience anything and everything I can.		3.4 (0.9)	0.56	0.84
<i>Thrill Seeking</i>				
I rarely do things that seem risky.		3.2 (1.0)	0.88	0.69
I avoid activities if there is a chance that I could get hurt.		3.3 (1.1)	0.81	0.67
I enjoy participating in unsafe activities.		2.5 (1.0)	0.74	0.68
I like to do things that other people think are dangerous.		2.7 (1.1)	0.70	0.72
I would describe myself as careful and cautious.		2.8 (1.1)	0.64	0.63
<i>Disinhibition</i>				
People often don't approve of how I act.		2.2 (1.0)	0.70	0.61
I like to wear things that shock people.		2.0 (1.0)	0.59	0.55
The only way for me to have fun is to do risky things.		1.8 (0.8)	0.58	0.61
I often act inappropriately in social situations.		2.1 (0.8)	0.57	0.63
I don't filter my behavior.		2.5 (0.9)	0.53	0.53

- Items were reversed when necessary so that high scores represent higher sensation seeking

- All factor loadings in the CFA were significant at $p < 0.001$

Discussion

The EFA identified and the CFA confirmed 3 subscales in the data: Experience Seeking, Thrill Seeking, and Disinhibition. These subscales are similar to subscales found on other measures of sensation seeking, for example the SSS-V has 4 subscales: Experience Seeking, Thrill and Adventure Seeking, Disinhibition, and Boredom Susceptibility. The current researchers could not locate a boredom susceptibility factor during previous EFAs, though specific boredom susceptibility items were included in the original item pool. The results of the analyses on this version of the SSPT indicate that it is a reliable measure of sensation seeking. Additionally, the results indicated that the factor structures of the subscales are stable. The SSPT also significantly and positively correlated with other measures of sensation seeking and behavioral approach while significantly and negatively correlating with a measure of avoidance. Additionally, the SSPT significantly correlated with measures of risky behavior. This indicates that the SSPT has good validity as well. These results, in conjunction with improvements made to scale format and content, indicate that the SSPT is a more psychometrically sound measure of sensation seeking than the SSS-V. Ongoing studies to further validate the SSPT scale are needed, including expanding the population to include early adolescents and clinical samples.