Published in final edited form as:
Pers Individ Dif. 2013 April 1; 54(5): 604–609. doi:10.1016/j.paid.2012.11.007.

Brief Sensation Seeking Scale for Chinese - Cultural Adaptation and Psychometric Assessment

Xinguang Chen[1,2], **Fang Li**[2], **Liesl Nydegger**[3], **Jie Gong**[2], **Yuanjing Ren**[1], **Veronica Dinaj-Koci**[1], **Huiling Sun**[2], and **Bonita Stanton**[1]

[1]Pediatric Prevention Research Center, Wayne State University School of Medicine, Michigan, 48201, USA

[2]Wuhan Centers for Disease Prevention and Control, Wuhan 430022, China

[3]Claremont Graduate University School of Community and Global Health California, 91711, USA

Abstract

International behavioral research requires instruments that are not culturally-biased to assess sensation seeking. In this study we described a culturally adapted version of the Brief Sensation Seeking Scale for Chinese (BSSS-C) and its psychometric characteristics. The adapted scale was assessed using an adult sample (n=238) with diverse educational and residential backgrounds. The BSSS-C (Cronbach alpha=0.90) was correlated with the original Brief Sensation Seeking Scale ($r = 0.85$, $p<0.01$) and fitted the four-factor model well (CFI=0.98, SRMR=0.03). The scale scores significantly predicted intention to and actual engagement in a number of health risk behaviors, including alcohol consumption, cigarette smoking, and sexual risk behaviors. In conclusion, the BSSS-C has adequate reliability and validity, supporting its utility in China and potential in other developing countries.

Keywords

Sensation Seeking scale; Cross-cultural adaptation; Health Behavior; China

Please send correspondence to: Dr. Xinguang Chen, Professor, Pediatric Prevention Research Center, Wayne State University School of Medicine, 4707 Saint Antoine Street, Detroit, MI 48201, USA. Tel.: 313-745-5866; fax: 313-745-4993. jimchen@med.wayne.edu.

IRB Approval: The research protocol was approved by the Human Investigation Committee at Wayne State University in the United States and the Institutional Review Board at Wuhan CDC, China.

Conflict of Interest: All authors declare that they have no conflicts of interest.

Author contribution: Chen X initiated the research, led and worked together with other authors from Wayne State University and Wuhan Center for Disease Prevention and Control to adapt the instrument and to prepare the first draft of the manuscript. Gong J, Li F, Sun H participated in the instrument adaptation, data collection, and manuscript revision. Ren Y conducted the statistical analysis. Nydegger L, Stanton B, Dinaj-Koci joined the development and finalization of the manuscript. All authors contributed substantially to and have approved the final manuscript.

1. Introduction

1.1 Sensation Seeking and Its Measurement

Sensation seeking is a personality trait describing the tendency to constantly seek novel, varying, and stimulating experiences and sensations and the willingness to accept the risk to obtain such arousal (Zuckerman, 1979). Theoretical research and empirical data indicate that sensation seeking is characterized by four sub-dimensions: (a) *Experience Seeking*, (b) *Boredom Susceptibility*, (c) *Thrill and Adventure Seeking*, and (d) *Disinhibition* (e.g., the lack of inhibition; Hoyle et al., 2002; Roberti et al., 2003; Zuckerman, 1994). Research findings repeatedly show a consistent association between sensation seeking and a number of health risk behaviors, including use of alcohol, tobacco, and drugs and engagement in sexual risk behavior (Pokhrel et al., 2009; Stephenson and Helme, 2006; Bornovalova et al., 2008).

Several instruments have been developed for different research purposes to assess sensation seeking including: the General Sensation Seeking Scale (Zuckerman et al., 1964), the Impulsive Sensation Seeking Scale (Zuckerman et al., 1993); the Arnett Inventory of Sensation Seeking instrument (Arnett, 1994); the Temperament Scale of Novelty Seeking (Cloninger, et al., 1993); the Sensation Seeking Scale for Adolescents (Michel et al., 1999); and, one of the most widely used, the 40-item Sensation Seeking Scale – Form V (Zuckerman et al., 1978).

To meet the needs of large-scale survey studies wishing to shorten questionnaires, the Brief Sensation Seeking Scale (BSSS, 8 items) was derived from the Form V (Hoyle et al., 2002). Although scales shorter than 8 items are also reported, including a 4-item scale (Stephenson et al., 2003) and a 2-item scale (Slater, 2003), these shorter instruments are not as widely used as the 8-item instrument in part due to their lower reliability (Vallone et al., 2007).

1.2 Why Revise the BSSS?

The 8-item BSSS, although short, covers the four basic constructs of sensation seeking, including Experience Seeking, Susceptibility to Boredom, Thrill and Adventure Seeking and Disinhibition (Hoyle et al., 2002). Because of its solid theoretical basis, short length, and documented reliability and validity, the BSSS has been widely used in research studies (Palmgreen et al., 2007; Stephenson et al., 2007). However, while attempting to use this instrument outside of the United States, we have encountered three important issues.

First, most items contain culture-specific components that may affect the reliability and validity of the scale. It has been well established that cultural and experiential differences play a significant role in how questions in a scale are interpreted and understood (Guillemin et al., 1993). For instance, one BSSS item for the Thrill and Adventure Seeking construct included the activity “bungee jumping”. However, bungee jumping is not commonly practiced in many developing countries, such as China. Likewise, the word “illegal” may not be relevant to use in China with traditional values emphasizing informal social regulations. Chinese are more likely to negotiate and use moral control rather than navigate the legal system to solve a problem (e.g., being assaulted) or a dispute (e.g., treated unequally in workplace) (Wong & Leung, 2001). Therefore, the connotation “illegal” in Chinese may be associated with only the severe crimes and the exposure to such crimes may be limited.

Second, there is an inconsistency between an item and the corresponding subscale Boredom Susceptibility. The item states: “I prefer friends who are excitingly unpredictable” and it implies an indirect rather than a direct relationship with the intended construct. As a result, psychometrically this item may significantly load on both the Boredom Susceptibility and other constructs. Thus, to be reliable and valid, the item needs to be revised.

Lastly, we are unaware of any previous studies that have validated a cultural adaption of the BSSS for use among Chinese. It is more efficient and practical to adapt an existing scale than create a new one. Validation of the cultural adaptation of a scale like BSSS is also valuable to the emerging global behavioral health research.

1.3 Purpose of this Study

To enhance the utility of sensation seeking measures for a better understanding of addictive and health risk behaviors across cultural settings, we proposed *the Brief Sensation Seeking Scale-Chinese version* (BSSS-C). In this culturally adapted instrument, the 8-item and 4-sub-dimension structure of the original BSSS were preserved, while the individual items were revised so that they were *less culture-specific* in terms of assessment settings *while retaining their close relationship to the corresponding sub-scales* in terms of internal constructs.

2. Materials and Methods

2.1 Pilot Study and Revision of the Scale Items

The BSSS-C was pilot-tested before it was systematically assessed. The pilot test was conducted among 10 rural migrants (18–35 years of age) who came to the Centers for Disease Prevention and Control (CDC) of a metropolitan city for physical check-up, a requirement for employment. Feedback from participants was used in item revision to generate the BSSS-C items. The original BSSS items were taken from the Chinese translation we tested in two previous studies (Tang et al., 2005; Chen et al., 2008). Results from the two studies were not reported because of high rates of missing data for several items and low reliability of the scale (alpha ranged between 0.48 and 0.63).

Among the total eight original BSSS items, three were slightly revised and five were substantially revised so they were less culturally specific and more explicitly mapped onto the four sensation seeking domains. Two items of the original scale on Experience Seeking were revised. Since holiday travels and exploration of strange places are not practiced as often in China and many other developing countries compared to developed countries, the culture specific substantive contents “exploring strange places” and “planning for trip” were replaced with two more general questions “have great interests in almost everything that is new” and “like doing things no one else has done before” respectively.

Among the two original BSSS items measuring Susceptibility to Boredom, we revised the first one by substituting the phrase “staying home” with “staying in the same place”. We made this revision because some participants from our pilot study suggested that “This question is intended for people who have no job but stay at home.” We also used an item “I get restless if I do the same thing for a long time” in the place of the original item “I prefer friends who are excitingly unpredictable”. This revision makes the item map only to Susceptibility to Boredom avoiding simultaneously loaded high on anther construct Thrill and Adventure Seeking as previously observed (Tang, et al., 2005). The revised statement is also easier for participants with limited education to understand.

Among the two items assessing Thrill and Adventure Seeking, we revised one by replacing “frightening things” with “dangerous things” because participants in our pilot often linked the “frightening things” with killing and shooting; and reported difficulties in rating their tendency to engage in this type of activity. We also reworded this item to avoid starting the statement with “I would like to” because this format has been repeated four times in the original BSSS. Since the first item was conceptually associated to an activity (doing dangerous things), we revised the second item using the concept of “socialization with adventurous people” rather than “bungee jumping”. Bungee jumping is an “activity” that

overlaps with the first item and, as mentioned previously, is culture-specific. Additionally, friend choice is important to reflect the high value placed on group harmony in Eastern cultures (Wong & Leung, 2001); thus choosing adventurous friends would indicate a desire to be adventurous as well.

The statement “like wild parties” in the Disinhibition construct was replaced by “will do anything as long as it is exciting and stimulating”. We made this revision because Chinese people tend to view “wild parties” very negative. In addition, a number of participants in our pilot study asked us to define “wild parties” to them while answering this question, suggesting the ambiguity of this term for them probably due to the growing influence of the western culture. As described in the introduction, we replaced the word “illegal” with the phrase “rules and regulations”. The revised BSSS-C items are presented in Table 2.

2.2 Sample Selection

Data used for assessing the BSSS-C were collected in Wuhan, China. As the provincial capital of Hubei, Wuhan is a typical large metro city located in central China with a population of more than 9 million. Participants of the study were working adults 18–45 years old, including residents in both rural and urban areas as well as rural-to-urban migrants. We purposefully included participants with diverse backgrounds to better assess the psychometric characteristics of the adapted instrument so that the BSSS-C can be used in different settings within China.

With the assistance of Wuhan CDC, rural-to-urban migrants were recruited in two steps. The trained data collectors selected one residential street that (1) was close to Wuhan CDC, and (2) well known for its large number of rural-to-urban migrants according to rural migrants who came to the CDC for prior-employment physical check-up.

The same protocol was used to recruit rural-to-urban migrants and non-migrant urban residents in urban settings. The protocol was slightly modified to recruit rural residents. Instead of selecting a street as in the urban areas, two natural villages in a rural county close to Wuhan CDC with convenient transportation were selected.

2.3 Data Collection

Trained data collectors from Wuhan CDC conducted the data collection. The data collectors had at least a college degree with more than 5 years of experience in field data collection. All members aged 18–45 in a selected household were eligible, and one member per household was randomly selected using Kish Table method and invited to participate. A total of 249 participants were recruited and completed the survey.

The BSSS-C was placed together with other instruments for assessing psychosocial and behavioral characteristics, all imbedded in the Migrant Health Behavior Questionnaire (MHBQ) we developed for the study. The order of the eight BSSS-C items was randomized to minimize response bias. The questionnaire was delivered using the Audio Computer-Assisted Self-Interviewing (ACASI) technique in a private room at the participant’s home. ACASI data indicated that on average it took 40 minutes (SD= 26) to complete the survey.

Among the total 249 participants, 11 reported that the data they provided was “not reliable at all” or “somewhat not reliable” were excluded, yielding a final sample of 238.

2.4 Scale Scoring of the BSSS-C

The same 5-point Likert scale for the original BSSS (1 = completely disagree, 5 = completely agree) was used for scoring the BSSS-C. With this measurement scale, the total

BSSS-C score range of an individual was 8 to 40 with the expected mean of 3 for individual items and 24 for the total scale. Total scale scores, scores for the four subscales, and mean item scores were computed respectively.

2.5 Evaluation of Criterion-Related and Construct Validity

2.5.1 Criterion-related validity—The original BSSS was used as the standard for assessing the criterion-related validity of BSSS-C. The total scale scores for the 8 items and the scores for the four subscales were computed and used for the validity analysis.

2.5.2 Construct validity—Two variables were used to assess construct validity – gender (male and female) and residential status (rural-to-urban migrants, non-migrant rural and urban residents). Research findings suggest that males are more likely than females to be high sensation seekers (Bazargan-Hejazi et al., 2007); people with higher sensation seeking tendency tend to frequently move residence (Zuckerman, 1994); and urban residents scored higher on sensation seeking than rural residents (Gordon and Caltabiano, 1996).

2.6 Evaluation of Concurrent Predictive Validity

Previous studies reported that sensation seeking is a strong predictor for a number of health related attitudes and behaviors, such as alcohol consumption (Pokhrel et al., 2009), tobacco use (Stephenson and Helme, 2006), and sexual risk behaviors (Bornovalova et al., 2008). We included these measures to assess concurrent validity.

2.6.1 Alcohol consumption intention and behavior—Intention to use alcohol was assessed using the question, “How likely is it that you will drink alcohol in the next 6 months?” (Drinkers were asked to indicate the likelihood to continue drinking.) (1 = very unlikely and 5 = very likely). The number of days of drinking, intoxication, and binge drinking in the past month (30 days) were assessed using the measure we previously used in China (Chen et al., 2005).

2.6.2 Cigarette smoking intention and behavior—Intention to smoke was assessed using the question, “How likely is it that you will smoke in the next 6 months?” (Smokers were asked to indicate the likelihood to continue smoking.) (1 = very unlikely and 5 = very likely). The number of days smoked in the past 30 days and the number of cigarettes smoked per day were also assessed. Years of daily smoking was assessed for those who reported being a daily smoker and the age at which they started smoking daily. These measures were all previous assessed and used in China (Chen et al., 2004).

2.6.3 Attitudes, intention and sexual risk behaviors—Attitudes toward sexual openness were assessed using the *Sexual Openness Scale* that we developed (alpha = 0.86, to be published). Since we were unable to locate a scale of this type in Chinese, we devised this scale based on our previous HIV risk behavior research in China (Hu et al., 2006). This scale consists of five items assessing a person’s acceptance of five sexual behaviors, including multiple sex partners, premarital sex, extra-marital sex, same-gender sex, and commercial sex. Scores were derived using a 5-point Likert scale (1 = totally disagree, 5 = totally agree) with higher scores indicating more openness toward sex. Sexual intention was assessed with the question “How likely is it that you will have sex in the next 6 months?” (1 = very unlikely and 5 = very likely). The number of sex partners was assessed using two questions, one asking number of partners since the first sexual experience and another asking number of partners in the past year.

2.7 Statistical Analysis

Item response of BSSS-C was assessed using mean and standard deviation. Scale reliability was assessed using item-to-total correlation and Cronbach alpha. To assess the four-factor structure, confirmatory factor analysis (CFA) was used. Data-model-fit was assessed using the Comparative Fit Index (CFI, >0.90) and standardized root mean of residuals (SRMR, <0.05). Construct validity was assessed by comparing BSSS-C scores using Student t-test (for gender differences) and ANOVA (for differences across-residential status, including pair-wise comparison with Tukey adjustment). Criterion validity was assessed by correlating BSSS-C scores with the original BSSS scores. Concurrent validity was assessed using regression. Statistical analysis was conducted using SAS 9.2 (SAS Institute, Cary, NC).

3. Results

3.1 Sample Characteristics

Data in Table 1 indicate that among the 238 participants, 81 (34%) were male, 76 (32.1%) were rural-to-urban migrants, 85 (32.1%) were non-migrant rural residents and 77 (35.8%) were non-migrant urban residents with a mean age of 29.4 years (*SD*=7.7), 81 (34.0%) had middle school or less education and 79 (33.2%) had college or more education.

3.2 Item Response

As shown in Table 2, the mean BSSS-C item score ranged from the lowest 2.52 (*SD*=1.22) for "I would love to have new and exciting experiences, even if they are against the rules" to the highest 3.81 (*SD*=0.88) for "I'm interested in almost everything that is new". The mean score of the four subscales ranged from 5.53 (*SD*=2.18) for the *Disinhibition* subscale to 6.89 (*SD*=1.64) for the *Experience Seeking* subscale. The total scale score = 25.77(SD=6.77).

3.3 Reliability and Internal Consistency

Results in Table 3 indicate that Cronbach's alpha = 0.90 for the BSSS-C. The alpha values did not differ much by gender, but differed more by residential status.

3.4 Confirmatory Factor Analysis

The data fitted the 8-item 4-dimensional model (Figure 1) well (CFI = 0.98, SRMR = 0.03; chi-square = 30.8, $df = 6$, $p<0.01$). The model coefficients were all statistically significant. In addition, several observed variables across the constructs were related.

3.5 Criterion-Related Validity

The correlation coefficients of BSSS-C with BSSS were 0.85 for the total scale scores, and 0.69 for Experience Seeking, 0.66 for Boredom Susceptibility, 0.67 for Thrill and Adventure Seeking and 0.74 for Disinhibition ($p<0.01$ for all).

3.6 Construct Validity

As expected, males scored significantly higher than females on the BSSS-C scale (27.69 vs. 24.78, $p<0.01$) and the four subscales, particularly the subscales Thrill and Adventure Seeking (7.09 vs. 6.37, $p < 0.01$) and Disinhibition (6.28 vs. 5.15, $p < 0.01$).

3.7 Concurrent Validity

BSSS-C scores significantly predicted intentions to drink ($p =0.02$), days of drinking ($p=0.02$) and binge drinking ($p=0.04$). BSSS-C scores also significantly predicted intention

to smoke ($p = 0.01$), years of daily smoking ($p<0.05$), open-attitudes towards sex ($p = 0.004$) and number of sex partners in lifetime ($p = 0.01$) and in the past year ($p = 0.04$) (Table 4).

4. Discussion and Conclusions

In this study, we reported the reliability and validity of the Brief Sensation Seeking Scale-Chinese Version (BSSS-C), an instrument we culturally adapted from the original BSSS (Hoyle et al., 2002) for use in China. The adapted instrument preserved the strength of the original 8-item and four-construct structure with individual items being revised so that it was less culture-specific with individual items better mapping to the sub-constructs. The study population for assessing the BSSS-C represented a diverse sample of Chinese adults, consisting of both rural and urban residents as well as rural-to-urban migrants with education attainment ranging from less-than-middle school to college or higher.

Participants responded well to BSSS-C with no complaints regarding inability to comprehend item meaning. No missing data was recorded for all the 8 items. The mean scores for the 8 items were all approximately 3.0, the theoretical mean for the 5-point Likert scale, close to those reported for the original BSSS among US participants (Hoyle et al., 2002). The BSSS-C has adequate reliability (Cronbach alpha ≥ 0.9), greater than those reported for the BSSS ranging from 0.74–0.79 (Hoyle, et al., 2002). CFA results indicated that the BSSS-C data fit the four-construct model well (GFI=0.97), comparable to those reported for the original BSSS (CFI=0.93–0.98) (Hoyle et al., 2002; Stephenson et al., 2007).

In addition to satisfactory reliability, this assessment supports adequate validity of BSSS-C. The BSSS-C scores were highly correlated with the original BSSS. Males scored higher than females on BSSS-C, consistent with those reported for BSSS (Hoyle et al., 2002). In addition, BSSS-C scores were significantly associated with intention to and actually engaging in a number of risk behaviors, also consistent with findings from other studies using different sensation-seeking measures (Bornovalova et al., 2008; Roberti 2003; Stephenson et al., 2007).

Several instruments have been used to measure sensation seeking (Arnett, 1994; Cloninger et al., 1993; Hoyle et al., 2002; Michel et al., 1999; Zuckerman et al., 1978; 1993). The 8-item BSSS is extremely useful because of its short length and good validity (Hoyle et al., 2002). However, the BSSS cannot be directly used among Chinese populations due to culture-specificity and indirect measurement of items and constructs. The BSSS-C is a contribution to help overcome these limitations and expand the opportunities of investigating sensation seeking cross cultural boundaries. Furthermore, since we were able to modify the BSSS for use in China, this implied the opportunity to evaluate the BSSS-C for use in other countries and places with similar cultural backgrounds.

There are limitations to this study. First, the BSSS-C was tested using cross-sectional data, longitudinal data are needed to assess its reliability over time. Second, findings of this study can only support the utility of BSSS-C in China; its validity and reliability in other non-Western countries need to be tested. Third, the mean score (3.81) for the item “I am interested in almost everything that is new.” indicating that this question may be too “easy” for a participant to fully agree. We suggest replacing it with “I will be very interested in anything as long as it is new.” Lastly, the high correlation (coefficient = 0.27, $p<0.01$) of two items across two subscales (e.g., “bored of things” as part of BS and “taking adventurers” as part of TA) needs further attention in future studies, although such correlation will not affect the reliability of the scale.

Despite these limitations, the BSSS-C provides an alternative tool to assess sensation seeking for health risk behavior research. The improved psychometric characteristics of BSSS-C over BSSS among Chinese imply a potential to assess the utility of this scale in other non-Western countries, supporting cross-cultural behavioral research for global health.

Acknowledgments

This research was supported in part by an NIH research grant (Award #: R01MH086322, PI: Chen X) through the National Institute of Mental Health. A number of research staff from Wuhan Centers for Disease Prevention and Control participated in data collection; we are particularly grateful to Yaqiong Yan, Juan Dai, Jing Chen, Gang Zhan, and Niannian Yang.

References

Arnett J. Sensation Seeking: A new conceptualization and a new scale. Personality and Individual Differences. 1994; 16(2):289–296.

Bazargan-Hejazi S, Gaines T, Duan N, Cherpitel CJ. Correlates of injury among ED visits: Effects of alcohol, risk perception, impulsivity, and sensation seeking behaviors. American Journal Drug Alcohol Abuse. 2007; 33(1):101–108.

Bornovalova MA, Gwadz MA, Kahler C, Aklin WM, Lejuez CW. Sensation seeking and risk-taking propensity as mediators in the relationship between childhood abuse and HIV-related risk behavior. Child Abuse Neglect. 2008; 32(1):99–109. [PubMed: 18155295]

Chen X, Li X, Stanton B, Fang X, Lin D, Cole M, et al. Cigarette smoking among rural-to-urban migrants in Beijing, China. Preventive Medicine. 2004; 39(4):666–673. [PubMed: 15351531]

Chen X, Tang X, Li X, Stanton B, Li W. Use of the Alcohol Dependence Scale among drinkers from a survey sample in China. Alcohol Research. 2005; 10(6):237–245.

Chen X, Tang X, Stanton B, Li H. Core human values and their interactions with pro-tobacco factors on cigarette smoking: The role of factors not explicitly related to a risk behavior. California Journal of Health Promotion. 2008; 6(1):23–39.

Cloninger CR, Svrakic DM, Przybeck TR. A psychobiological model of temperament and character. Archives of General Psychiatry. 1993; 50(12):975–990. [PubMed: 8250684]

Gordon WR, Caltabiano ML. Urban-rural differences in adolescent self-esteem, leisure boredom, and sensation-seeking as predictors of leisure-time usage and satisfaction. Adolescence. 1996; 31(124): 883–901. [PubMed: 8970661]

Guillemin F, Bombardier C, Beaton D. Cross-cultural adaptation of health-related quality of life measures: Literature review and proposed guidelines. Journal of Clinical Epidemiology. 1993; 46(12):1417–1432. [PubMed: 8263569]

Hoyle RH, Stephenson MT, Palmgreen P, Lorch EP, Donohew L. Reliability and validity of a brief measure of sensation seeking. Personality and Individual Differences. 2002; 32:401–414.

Hu Z, Liu H, Li X, Stanton B, Chen X. HIV-related sexual behaviour among migrants and non-migrants in a rural area of China: Role of rural-to-urban migration. Public Health. 2006; 120(4): 339–345. [PubMed: 16473377]

Michel G, Mouren-Simeoni MC, Perez-Diaz F, Falissard B, Carton S, Jouvent R. Construction and validation of a sensation seeking scale for adolescents. Personality and Individual Differences. 1999; 26(1):159–174.

Palmgreen P, Lorch EP, Stephenson MT, Hoyle RH, Donohew L. Effects of the Office of National Drug Control Policy's Marijuana Initiative Campaign on high-sensation-seeking adolescents. American Journal of Public Health. 2007; 97(9):1644–1649. [PubMed: 17395843]

Pokhrel P, Sussman S, Sun P, Kniazer V, Masagutov R. Social self-control, sensation seeking and substance use in samples of US and Russian adolescents. American Journal of Health Behavior. 2009; 34(3):374–384. [PubMed: 20001194]

Roberti JW, Storch EA, Bravata E. Further psychometric support for the Sensation Seeking Scale - Form V. Journal of Personality Assessment. 2003; 81(3):291–292. [PubMed: 14638454]

Slater MD. Alienation, aggression, and sensation seeking as predictors of adolescent use of violent film, computer, and website content. Journal of Communication. 2003; 53(1):105–121.

Stephenson MT, Helme DW. Authoritative parenting and sensation seeking as predictors of adolescent cigarette and marijuana use. Journal of Drug Education. 2006; 36(3):247–270. [PubMed: 17345917]

Stephenson MT, Hoyle RH, Palmgreen P, Slater MD. Brief measures of sensation seeking for screening and large-scale surveys. Drug and Alcohol Dependence. 2003; 72(3):279–286. [PubMed: 14643945]

Stephenson MT, Velez LF, Chalela P, Ramirez A, Hoyle RH. The reliability and validity of the Brief Sensation Seeking Scale (BSSS-8) with young adult Latino workers: Implications for tobacco and alcohol disparity research. Addiction. 2007; 102(Suppl 2):79–91. [PubMed: 17850617]

Tang X, Chen X, Li H, Stanton B, Li X. Smoking and drinking patterns among residents of Li ethnic minority villages in Hainan, China. Substance Use & Misuse. 2005; 40(5):687–701. [PubMed: 15887598]

Vallone D, Allen JA, Clayton RR, Xiao H. How reliable and valid is the Brief Sensation Seeking Scale (BSSS-4) for youth of various racial/ethnic groups? Addiction. 2007; 102(Suppl 2):71–78. [PubMed: 17850616]

Wong, YH.; Leung, TK. Guanxi: Relationship Marketing in a Chinese Context. New York, NY: International Business Press; 2001.

Zuckerman, M. Sensation seeking: Beyond the optimal level of arousal. New York: Erlbaum Associates; 1979.

Zuckerman, M. Behavioral expressions and biosocial bases of sensation seeking. New York: Cambridge University Press; 1994.

Zuckerman M, Eysenck S, Eysenck HJ. Sensation seeking in England and America: Cross-cultural, age, and sex comparisons. Journal of Consulting Clinical Psychology. 1978; 46(1):139–149.

Zuckerman M, Kolin EA, Price L, Zoob I. Development of a sensation-seeking scale. Journal of Consulting Psychology. 1964; 28:477–482. [PubMed: 14242306]

Zuckerman M, Kuhlman DM, Joireman J, Teta P, Kraft M. A Comparison of three structural models for personality: The Big 3, the Big 5, and the Alternative 5. Journal of Personality and Social Psychology. 1993; 65(4):757–768.

Highlights

- Cultural adaptation of the Brief Sensation Seeking Scale for use in China
- Adequate reliability and validity of the adapted instrument
- A new tool meets the global needs for sensation-seeking and related research
- Support potentials to test the adapted scale in other developing countries

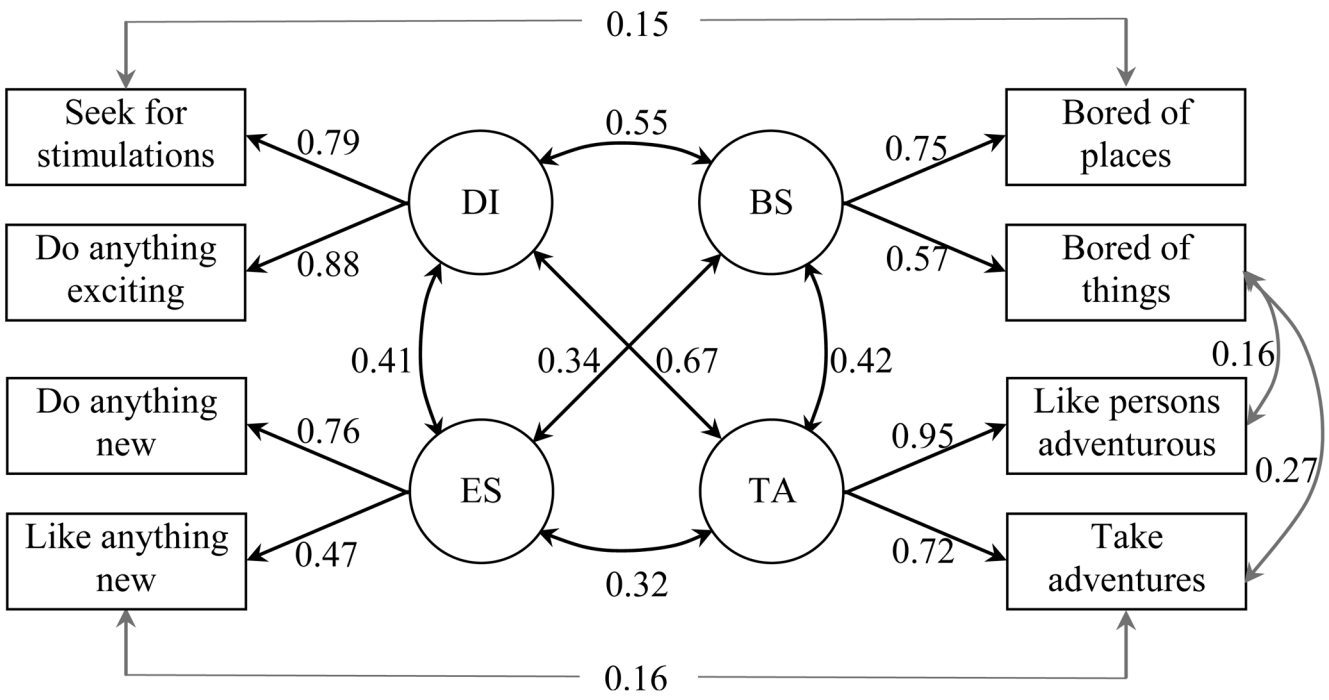

Figure 1.
CFA modeling of the Brief Sensation Seeking Scale - Chinese Version
Note: ES= Experience seeking, BS = Boredom susceptibility, TA= Thrill and adventure seeking, DI= Disinhibition. Model fitting: GFI = 0.97, Standardized root mean score (SRMR) = 0.03, Chi square = 30.8, $p < 0.01$

Table 1

Selected characteristics of the study sample

Characteristic	Male, n (%)	Female, n (%)	Total, n (%)
Total sample	81 (34.0)	157 (66.0)	238 (100.0)
Age in years			
<30	47 (58.0)	88 (56.1)	135 (56.7)
≥30	34 (42.0)	69 (43.9)	103 (43.3)
Educational attainment			
≤Middle school	25 (30.9)	56 (35.7)	81 (34.0)
High school	24 (29.6)	54 (34.4)	78 (32.8)
College or higher	32 (39.5)	47 (29.9)	79 (33.2)
Marital status			
Single	40 (49.4)	61 (38.9)	101 (42.4)
Married	39 (48.1)	95 (60.5)	134 (56.3)
Divorced	2 (2.5)	1 (0.6)	3 (1.3)
Residential status			
Rural-to-urban migrants	26 (32.1)	50 (31.9)	76 (31.9)
Rural residents	26 (32.1)	59 (37.5)	85 (35.7)
Urban residents	29 (35.8)	48 (30.6)	77 (32.4)

Table 2

Mean score (SD) and item-total correlation, individual items and subscales of the Brief Sensation Seeking Scale-Chinese Version (BSSS-C), N=238

Subscale/item	Mean item score (*SD*)	Item-scale correlation	*α* coefficient if deleted
Experience Seeking (ES)	6.89 (1.64)	0.77	0.86
I m interested in almost everything that is new.	3.81 (0.88)	0.51	0.90
I always like to do things that no one else has done before.	3.08 (1.08)	0.73	0.88
Boredom Susceptibility (BS)	6.74 (1.82)	0.75	0.86
I will feel very uncomfortable if I stay in the same place for too long.	3.11 (1.15)	0.67	0.89
I get restless if I do the same thing for a long time.	3.63 (1.01)	0.59	0.89
Thrill and Adventure Seeking (TA)	6.61 (2.03)	0.80	0.84
I would love to socialize with adventurous people.	3.14 (1.13)	0.83	0.87
Take adventures always makes me happy.	3.47 (1.07)	0.70	0.89
Disinhibition (DI)	5.53 (2.18)	0.73	0.87
I would do anything as long as it exciting and stimulating.	3.01 (1.14)	0.76	0.88
To pursue new stimulaus and excitement, I can go against rules and regulations.	2.52 (1.22)	0.68	0.89
Total Scale	25.77 (6.67)	1.00	0.90

Note: The item-scale correlation coefficients were all statistically significant at $p<0.01$ level.

Table 3

Cronbach alpha for the Brief Sensation Seeking Scale-Chinese Version, N=238

Variable	BSSS-C	Subscales of BSSS-C			
		Experience seeking	Boredom susceptibility	Thrill and adventure seeking	Disinhibition
Total sample	0.90	0.54	0.59	0.82	0.82
Gender					
Male	0.91	0.67	0.63	0.84	0.87
Female	0.89	0.47	0.56	0.80	0.79
Age group					
<30 years	0.89	0.54	0.49	0.77	0.83
≥30 years	0.91	0.53	0.65	0.85	0.81
Residential status					
Migrants	0.91	0.61	0.39	0.75	0.85
Rural	0.92	0.53	0.67	0.83	0.84
Urban	0.84	0.45	0.67	0.84	0.71

Table 4

Concurrent validity – Standardized regression coefficients b (95% “CI) assessing the association between BSSS-C scores and selected health risk behaviors, N = 238

Variable	*b* (95% *CI*)	*SE*	*t*	*P*-value
Alcohol drinking				
Days drank last month	0.11 (0.01, 0.20)	0.048	2.27	0.02
Days drunk last month	0.04 (−0.01, 0.09)	0.023	1.73	0.09
Binge-drink last month	0.04 (0.00, 0.08)	0.019	2.12	0.04
Likelihood to drink in 6 months	0.04 (0.01, 0.07)	0.015	2.32	0.02
Cigarette smoking				
Days smoked in the past 30 days	0.13 (−0.05, 0.30)	0.090	1.39	0.16
No. of cigarettes smoked per day	0.07 (−0.04, 0.17)	0.053	1.25	0.21
Years of daily smoking	0.13 (0.01, 0.24)	0.06	2.20	0.03
Likelihood to smoke in 6 months	0.04 (0.01, 0.07)	0.014	2.59	0.01
Sexual risk behaviors				
No. of lifetime sex partners	0.33 (0.07, 0.59)	0.132	2.51	0.01
No. of sex partners last year	0.12 (0.01, 0.23)	0.057	2.07	0.04
Likelihood to have sex in 6 months	0.02 (0.00, 0.05)	0.014	1.72	0.09
Sex-related attitude	0.14 (0.04, 0.23)	0.047	2.92	0.00

Note: Results from regression analysis using BSSS-C scores to predict behavior