



## Brief Sensation Seeking Scale for Chinese – Cultural adaptation and psychometric assessment

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### 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.

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## 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, Stephenson, Palmgreen, Lorch, & Donohew, 2002; Roberti, Storch, & Bravata, 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 (Bornovalova, Gwadz, Kahler, Aclin, & Lejuez, 2008; Pokhrel, Sussman, Sun, Kniazar, & Masagutov, 2009; Stephenson & Helme, 2006).

Several instruments have been developed for different research purposes to assess sensation seeking including: the General Sensation Seeking Scale (Zuckerman, Kolin, Price, & Zoob, 1964), the

Impulsive Sensation Seeking Scale (Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993); the Arnett Inventory of Sensation Seeking Instrument (Arnett, 1994); the Temperament Scale of Novelty Seeking (Cloninger, Svrakic, & Przybeck, 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, Eysenck, & Eysenck, 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, Hoyle, Palmgreen, & Slater, 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, Allen, Clayton, & Xiao, 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, Lorch, Stephenson, Hoyle, & Donohew, 2007; Stephenson, Velez, Chalela, Ramirez, & Hoyle, 2007). However, while attempting to use this instrument

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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, Bombardier, & Beaton, 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 adaptation 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 (Chen, Tang, Stanton, & Li, 2008; Tang, Chen, Li, Stanton, & Li, 2005). 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 another 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.

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