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Psychometric Measures of Boredom: A Review of the Literature

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ABSTRACT. This research presents a review of the psychometric measures on boredom that have been developed over the past 25 years. Specifically, the author examined the Boredom Proneness Scale (BPS; R. Farmer & N. D. Sundberg, 1986), the job boredom scales by E. A. Grubb (1975) and T. W. Lee (1986), a boredom coping measure (J. A. Hamilton, R. J. Haier, & M. S. Buchsbaum, 1984), 2 scales that assess leisure and free-time boredom (S. E. Iso-Ahola & E. Weissinger, 1990; M. G. Ragheb & S. P. Merydith, 2001), the Sexual Boredom Scale (SBS; J. D. Watt & J. E. Ewing, 1996), and the Boredom Susceptibility (BS) subscale of the Sensation Seeking Scale (M. Zuckerman, 1979a). Particular attention is devoted to discussing the literature regarding the psychometric properties of the BPS because it is the only full-scale measure on the construct of boredom.

Key words: assessment, boredom, boredom proneness, measurement, psychometric, scales

THE MEASUREMENT OF BOREDOM has received relatively little systematic attention in the literature. Indeed, boredom has traditionally been assumed to exist in, or be equated with, monotonous or repetitive activities (see O'Hanlon, 1981; Smith, 1981). An example of such a definition of boredom was offered by O'Hanlon, who defined boredom as a ". . . unique psychophysical state that is somehow produced by prolonged exposure to monotonous stimulation" (p. 54). However, this approach to characterizing boredom neglects the role of an individual's subjective perception of the environment (e.g., Geiwitz, 1966) and the attributional processes used to label an individual's emotional state (e.g., Mikulas & Vodanovich, 1993). Regarding boredom, Geiwitz commented that ". . . individual differences suggest that monotony objectively defined as an attribute of the situation is less important than the subjective feeling of repetitiveness" (p. 593). Hill and Perkins (1985) stated that ". . . boredom occurs when stimuli is construed as

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subjectively monotonous" (p. 237), and DeChenne and Moody (1988) discussed a ". . . sense of inadequate stimulation from the environment" (p. 20).

Perkins and Hill (1985) further expounded that ". . . cognitive changes in the direction of less differentiated and more homogeneous construing give rise to a state of subjective monotony which induces, or perhaps even represents, the state we call boredom" (p. 231). Finally, Mikulas and Vodanovich (1993) defined boredom as "a state of relatively low arousal and dissatisfaction which is attributed to an inadequately stimulating environment" (p. 1).

Indeed, a shortcoming of the boredom literature is the absence of a coherent, universally accepted definition. The existence of varying approaches to defining boredom was discussed by Leary, Rogers, Canfield, and Coe (1986). They stated that boredom has been diversely conceptualized ". . . in terms of its situational antecedents, physiological correlates, phenomenological concomitants, and behavioral consequences" (p. 968). The lack of an agreed-upon definition of boredom has limited the measurement of the construct and partly accounts for the existence of diverse approaches to assessing various subsets of boredom.

Boredom has been commonly assessed with single-item, self-report scales (e.g., Bailey, Thackery, Pearl, & Parish, 1976; Larson & Richards, 1991; Shaw, Caldwell, & Kleiber, 1996). Such measures often lack desirable levels of reliability and validity. The Boredom Proneness Scale (BPS; Farmer & Sundberg, 1986) is currently the only full-scale measure of the general construct. Other devices either assess specific aspects of boredom or are subscales of more global instruments.

There are two instruments that measure job boredom (Grubb, 1975; Lee, 1986), one that assesses coping with boredom (Hamilton, Haier, & Buchsbaum, 1984), two that appraise leisure or free-time boredom (Iso-Ahola & Weissinger, 1990; Ragheb & Merydith, 2001), another that measures sexual boredom (Watt & Ewing, 1996), and the Boredom Susceptibility scale, which is a subscale of the Sensation Seeking Scale (Zuckerman, 1979a).

The purpose of this research is to provide a summary of each of these measures of boredom. Given the full-scale nature of the BPS, I discuss the research on its psychometric properties and correlates first and in relatively greater detail than the other instruments just mentioned.

Boredom Proneness Scale

The BPS (Farmer & Sundberg, 1986) consists of 28 true–false items (e.g., "I often find myself with time on my hands and nothing to do"; "It takes a lot of change and variety to keep me really happy"; "I am good at waiting patiently"). The final version of the scale was administered to 233 undergraduates. Farmer and Sundberg (1986) reported the internal consistency of the scale to be .79. Similar reliability estimates, ranging from .72 to .77, have been found by other researchers (e.g., Ahmed, 1990; Blunt & Pychyl, 1998; Gana & Akremi, 1998). In addition, the temporal stability of the BPS has been assessed in several other

studies. For instance, the test–retest reliability of the scale has ranged from .79 to .91 across time intervals of between 1 to 3 weeks (Farmer & Sundberg, 1986; Gana & Akremi, 1998; McGiboney & Carter, 1988).

Alpha coefficients ranging from .79 to .84 for a revised 7-point Likert version of the BPS have been reported across a number of studies (e.g., Harris, 2000; Kass & Vodanovich, 1990; McLeod & Vodanovich, 1991; Seib & Vodanovich, 1998; Vodanovich & Kass, 1990; Vodanovich, Verner, & Gilbride, 1991; Watt & Davis, 1991; Watt & Vodanovich, 1992a; Wink & Donahue, 1997).

BPS Factor Structure

Over the past decade, factor analytic studies of the BPS have been undertaken by several researchers (Ahmed, 1990; Gana & Akremi, 1998; Gordon, Wilkinson, McGown, & Jovanoska, 1997; Vodanovich & Kass, 1990; Vodanovich, Watt, & Piotrowski, 1997). Ahmed reported a two-factor solution (Apathy and Inattention) using data gathered from a sample of 154 Canadian students. Gana and Akremi, from data on a French adaptation of the BPS from a combined sample of students and elderly individuals ($N = 270$), found evidence for the presence of two BPS factors (Internal and External Stimulation).

Vodanovich and Kass (1990) administered the BPS to 385 college students in the United States and found evidence for the existence of at least five factors. These factors were labeled: External Stimulation, Internal Stimulation, Affective Responses, Perception of Time, and Constraint. Vodanovich, Watt, and Piotrowski (1997) investigated the factor structure of the BPS with a sample of African American college students and found evidence for an eight-factor solution, conceptually similar to the five-factor solution reported by Vodanovich and Kass that employed primarily Caucasian participants. The additional factors were considered "subsets" of the original Internal and External Stimulation subscales and were named Perception of Time, Internal Stimulation (Creativity), External Stimulation (Monotony), Constraint, Affect, Patience, Internal Stimulation (Attention Maintenance), and External Stimulation (Challenge) (see Vodanovich et al., 1997).

Gordon et al. (1997) performed a confirmatory factor analysis on the five-factor solution of the BPS reported by Vodanovich and Kass (1990). Based on responses from an Australian sample of undergraduates and employees ($N = 345$), partial support for the five-factor solution was found. Two of the factors (Low Self Regulation and Needs A Buzz) were analogous to Vodanovich and Kass's Internal and External Stimulation factors, respectively. A third factor, labeled Restless in Restraint, was equivalent to Vodanovich and Kass's Constraint factor. The other factors found by Gordon et al. were named Lack of Creativity and Inattention. These authors did not find evidence for the existence of the Affective Responses and Perception of Time subscales reported by Vodanovich and Kass.

Finally, evidence regarding the five-factor solution of the BPS is available from studies that have assessed the reliabilities of the subscales. Wink and Donahue (1997) reported that the five BPS subscale reliabilities varied from .51 to .71. Harris (2000) found the coefficient alphas for the subscales ranged from .55 to .68, whereas Vodanovich and Kass (1990) reported a range from .59 to .73 on the internal consistency of the subscales.

The factor analytic evidence on the BPS has largely indicated the existence of between two to five factors. The largest agreement across these studies appears to be the emergence of two factors. One cluster seems to reflect the presence of low levels of perceived environmental stimulation. This can be inferred by the External Stimulation factors found by Gana and Akremi (1998), Vodanovich and Kass (1990), and Vodanovich, Watt, and Piotrowski (1997), the Needs a Buzz dimension labeled by Gordon et al. (1997), and the Apathy factor presented by Ahmed (1990). The other cluster represents the ability (or inability) of people to create interesting activities for themselves. Evidence for this can be gleaned from the Internal Stimulation factors found by Gana and Akremi, Vodanovich and Kass, Vodanovich et al. (1997), the Low Self-Regulation category reported by Gordon et al., and the Inattention factor found by Ahmed (1990).

Beyond the existence of these two factors, the factor analytic results across published studies are difficult to compare. One reason for this lack of comparability is that the research has varied with respect to several important variables. For instance, some researchers used the true–false version of the BPS (Ahmed, 1990; Gana & Akremi, 1998), whereas others used a 7-point modification of the scale (e.g., Gordon et al., 1997; Vodanovich & Kass, 1990). The minimum criterion for including items into factors was specified as .30 in some studies (e.g., Ahmed; Gordon et al.) and .40 in others (e.g., Vodanovich & Kass). Researchers have used a varimax rotation (Gordon et al; Vodanovich & Kass), an oblique rotation (Gana & Akremi), or presented unrotated results (Ahmed). On the basis of the views of some psychometricians, more weight should be given to results of varimax rotations (e,g., Nunnally, 1978).

The samples have also differed in culture and size. For instance, factor analytic results have been computed on responses from Canadians ($N = 154$; Ahmed, 1990), French ($N = 270$; Gana & Akremi, 1998), Australians ($N = 345$; Gordon et al., 1997), and Caucasian Americans ($N = 385$; Vodanovich & Kass, 1990) and African Americans from the United States ($N = 201$; Vodanovich et al., 1997).

Although such varied samples are useful for generalization purposes, interpreting the factor structure from these diverse samples is complicated, particularly given research that shows differences in BPS scores by culture (Sundberg, Latkin, Farmer, & Saoud, 1991; Vodanovich & Watt, 1999) and race (Watt & Vodanovich, 1992a). Technically, following the recommendation of Nunnally (1978), more confidence should be placed on factor analysis studies that possessed a minimum of 10 people per BPS item (i.e., $N = 280$), because these results are not likely to be affected by chance.

Finally, the samples used in the factor analytic studies of the BPS consisted primarily of university students. Consequently, it would be beneficial for future researchers to perform a large-scale factor analysis to assess the invariance of the BPS factor structure across various groups (culture, age, race) using structural equation modeling (e.g., LISREL) to better determine the scale's factor composition.

Research regarding the validity of the BPS has yielded significant relationships with an array of variables. I have summarized the results of these studies here. Table 1 provides an overview of research findings reporting correlations between the BPS and other psychological measures.

Correlates of the Boredom Proneness Scale

Negative Affect

A host of researchers have found significant and positive relationships of BPS scores with measures of different types of negative affect. This has been particularly evident in studies that link boredom proneness and depression. For instance, Farmer and Sundberg (1986), in their initial development and validation of the BPS, reported significant and positive correlations between BPS scores and measures of depression, hopelessness, loneliness, amotivational orientation, and self-ratings of boredom. Ahmed (1990) found a significant, positive relationship between boredom proneness and scores on the Minnesota Multiphasic Personality Inventory (MMPI) depression scale. Vodanovich et al. (1991) reported BPS scores to be significantly and positively related to depression using the Multiple Affect Adjective Checklist (MAACL; Zuckerman & Lubin, 1985). Vodanovich et al. (1991) also found BPS scores to have a significant, negative relationship to positive affect scores.

Two studies (Blaszczynski, McConaghy, & Frankova, 1990; Gana & Akremi, 1998) reported significant, positive correlations between the BPS and scores on the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). Gana and Akremi (1998) also found a significant correlation between the BPS and scores on the Geriatric Depression Scale (Bourque, Blanchard, & Vezina, 1990). More recently, Sommers and Vodanovich (2000) presented findings that indicated a significant relationship between boredom proneness and anxiety and/or depression scores on the Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). Finally, Watt and Ewing (1996) found that BPS scores were related to the Sexual Depression subscale of the Sexuality Scale (Snell & Papini, 1989).

Other research results have indicated that boredom proneness scores are significantly related to other forms of negative affect, including hostility and aggression. For example, Gordon et al. (1997) reported a significant association between the BPS and hostility and negative affect scores on the PANAS (Watson,

TABLE 1. Summary of Research Findings on the Boredom Proneness Scale

Authors (ranked by date)	Sample	Significant positive relationship with high BPS scores	Significant negative relationship with high BPS scores
Wallace et al. (in press)	263 (126 U.S. military personnel; 137 undergraduate students)	Cognitive failures	NA
Wallace et al. (in press)	23 undergraduate students; 112 U.S. Navy personnel	Cognitive failures	NA
Kass, Vodanovich, & Callander (2001)	368 manufacturing employees	NA	Job satisfaction
Kass, Vodanovich, Stanny, & Taylor (2001)	45 undergraduate students	NA	Vigilance performance (sensory efficiency)
Harris (2000)	170 college students	Mood monitoring	Mood labeling, flow proneness
Sommers & Vodanovich (2000)	200 U.S. university students	Obsessive-compulsivity, somatization, anxiety, interpersonal sensitivity, and depression	NA
Gana et al. (2000)	154 French adults	Introspectiveness	NA
Watt & Vodanovich (1999)	142 U.S. university students	NA	Psychosocial development (e.g., purpose, autonomy, interpersonal relationships)
Vodanovich & Watt (1999)	154 U.S. university students; 184 Irish university students	Time structure scores (e.g., sense of purpose, structured routine, present orientation) [U.S. sample]	Time structure scores (e.g., sense of purpose, structured routine, present orientation) [Irish sample]

Vodanovich & Rupp (1999)	146 undergraduate students	Procrastination	NA
Blunt & Pychyl (1998)	120 Canadian undergraduate students	General and decisional procrastination	NA
Seib & Vodanovich (1998)	308 university students	Self-reflectivity, private self-consciousness	Internal state awareness, need for cognition
Gana & Akremi (1998)	179 French university students; 100 French elderly	Depression	Self-actualization
Wink & Donahue (1997)	106 female U.S. university students	Overt and covert narcissism	NA
Rupp & Vodanovich (1997)	293 U.S. university students	Aggression (i.e., Hostility), Anger Expression (i.e., Anger-In, Anger-Out), and Anger-Control	NA
Gordon et al. (1997)	345 Australian university students and employees	Negative affect, neuroticism, fear, hostility, guilt, fatigue	Positive affect, joviality, self-assurance, attentiveness
Vodanovich, Weddle, & Piotrowski (1997)	111 university students	External work values	Internal work values
Watt & Ewing (1996)	254 U.S. university students	Boredom susceptibility, sexual boredom, sexual depression, sexual preoccupation	Life satisfaction, sexual self-esteem
Sawin & Scerbo (1995)	60 undergraduate students	NA	Vigilance performance
Weinstein et al. (1995)	40 retirees	NA	Purpose in life
Polly et al. (1993)	214 university students	NA	Attributional complexity
Leong & Schneller (1993)	132 undergraduate students	Dogmatism	Sociability, persistence, impulse control
Watt & Vodanovich (1992b)	381 undergraduate students	Impulsivity	NA

(table continues)

TABLE 1. Continued

Authors (ranked by date)	Sample	Significant positive relationship with high BPS scores	Significant negative relationship with high BPS scores
McLeod, & Vodanovich (1991)	154 undergraduate students	NA	Self-actualization
Watt & Davis (1991)	110 undergraduate students	Perception of time passing slowly	NA
Kass & Vodanovich (1990)	210 undergraduate students	Type A behavior subscale of speed and impatience, sensation seeking	Type A behavior subscales of job involvement, hard driving and competitive
Ahmed (1990)	154 Canadian university students	Extraversion, depression	NA
Blaszczynski et al. (1990)	48 diagnosed pathological gamblers; 40 family physician patients	Pathological gambling, depression	NA
Bornstein et al. (1990)	100 undergraduate students	Quicker habituation to repeated stimuli	
Tolor (1989)	76 graduate students	Alienation, Dogmatism	Assertiveness
Tolor & Siegel (1989)	128 graduate and undergraduate students	Less intention to vote	NA
McGiboney & Carter (1988)	50 high school students	Inactivity, social dependency, disregard for rules, apprehension, insecurity, guilt proneness	Enthusiasm, socially bold and adventuresome
Farmer & Sundberg (1986)	233 U.S. undergraduate students	Depression, hopelessness, loneliness, job boredom, bordome susceptibility	Life satisfaction

Clark, & Tellegen, 1988). Vodanovich et al. (1991) found that BPS scores were correlated with hostility, anxiety, and overall dysphoria scores on the MAACL. Rupp and Vodanovich (1997) found that boredom proneness was significantly related to scores on the Physical Aggression, Verbal Aggression, Anger, and Hostility scales of the Aggression Questionnaire (Buss & Perry, 1992). They also found that high boredom prone individuals had higher scores on the Anger-In ("I keep things in"), Anger-Out ("I strike out at whatever infuriates me"), and Anger-Control ("I control my angry feelings") scales within the State–Trait Anger Expression Inventory (Spielberger, 1996; Spielberger et al., 1985). These results support the contention by many writers that boredom may be a sign of anger directed at oneself (e.g., McHolland, 1988; Morrant, 1984) and related to the inability to control one's impulses (e.g., Leong & Schneller, 1993; Watt & Vodanovich, 1992b).

The significant, positive associations found between boredom proneness and negative affect are generally consistent with theoretical propositions and definitions of boredom. For instance, several authors have proposed that environmental monotony (perceived or real) produces the unpleasant aspects of boredom by creating less than optimal levels of cortical arousal. According to Berlyne (1960) and Fenichel (1951) this unpleasantness is due to a state of high physiological arousal, whereas Hebb (1955) suggested a connection between boredom and low arousal conditions. In any event, the core of an arousal interpretation is that individuals strive to maintain optimal arousal and that non-optimal arousal levels lead to negative affect. Indeed, Leary et al. (1986) have stated that the effort to maintain optimal levels of arousal by attending to uninteresting stimuli is necessary for the onset of boredom and is what distinguishes it from disinterest.

An advantage of the BPS is its potential use in the clinical assessment of the facets of boredom, as well as its ability to indicate the presence of boredom and to separate it from other negative affect conditions (e.g., depression, anxiety). Although the existence of boredom in clinical settings has been widely discussed (e.g., DeChenne & Moody, 1988; Morrant, 1984; Nichols, 1988; Taylor, 1984), it has rarely been systematically measured in this context. Regarding the distinction between boredom and depression, Farmer and Sundberg (1986) stated that the two constructs can be differentiated ". . . by quality and intensity of mood." They further stated that depression can be conceptualized by ". . . feelings of sadness or personal loss, whereas boredom is characterized by a lack of interest, which can exist independently of sadness" (p. 15). Finally, Schubert (1978) discussed that knowledge of a person's propensity to boredom could be useful in therapeutic settings. He commented that "if the psychiatrist can identify the boredom prone patient early enough, he can be on guard for the reactions he can expect from such a patient during treatment" (pp. 46–47).

In addition to the relationship between boredom proneness and negative affect, some studies have suggested a connection between BPS scores and the

level of scrutiny of an individual's emotional states. For instance, Scib and Vodanovich (1998) found that those with low BPS scores possessed high "positive" self-awareness scores (indicating an awareness of one's internal states), whereas people with high boredom proneness scores had high "negative" self-awareness, which represents the tendency to judge and evaluate one's emotions. Gana, Deletang, and Metais (2000) also found that high BPS scores were associated with a tendency for greater introspection.

Cognition and Attention

Results of several studies have indicated that BPS scores are associated with the inclination toward certain cognitive propensities. For instance, Polly, Vodanovich, Watt, and Blanchard (1993) reported that high boredom-prone individuals scored significantly lower on the Attributional Complexity Scale (Fletcher, Damilovics, Fernandez, Peterson, & Reeder, 1986) in which a high score indicates the inclination to use complex descriptions for behavior. Other researchers (Scib & Vodanovich, 1998; Watt & Blanchard, 1994) found that greater boredom proneness was related to lower scores on the Need for Cognition scale, which assesses the ". . . tendency for individuals to engage in and enjoy thinking" (Cacioppo & Petty, 1982, p. 116; Cacioppo, Petty, & Kao, 1984). Wallace, Kass, and Stanny (2002) and Wallace, Vodanovich, and Restino (2003) found that high boredom proneness is related to higher scores on the Cognitive Failures Questionnaire (Broadbent, Cooper, Fitzgerald, & Parkes, 1982), which measures the propensity to make mistakes in accomplishing common tasks. Finally, Gordon et al. (1997) indicated that high BPS scores are associated with lower attentiveness.

The association between boredom and poor attentional control has been the focus of various conceptualizations of boredom. Leary et al. (1986) considered boredom to be ". . . an affective experience associated with cognitive attentional processes" (p. 968). Hamilton (1981) and Hamilton et al. (1984) speculated that focusing one's attention on a single aspect of a situation, thereby allowing for potential distractors, may lead to feelings of monotony. Damrad-Frye & Laird (1989) concluded that boredom is the product of a ". . . metacognitive judgement about one's attentional capacity" (p. 320). Finally, Fisher (1993) offered a definition of boredom that combines affective and cognitive and/or attentional features. She stated that boredom is ". . . an unpleasant, transient affective state in which the individual feels a pervasive lack of interest in and difficulty concentrating on the current activity" (p. 396).

Overt Behavior

A number of study results have shown that BPS scores are related to a variety of behavioral tendencies or dispositions. For example, boredom proneness has been significantly associated with impulsivity (Watt & Vodanovich, 1992b)

and poor impulse control (Leong & Schneller, 1993). Other research results have found BPS scores positively associated with procrastination (Blunt & Pychyl, 1998; Vodanovich & Rupp, 1999). Kass and Vodanovich (1990) found BPS scores significantly associated with Type A behavior; highly boredom-prone individuals had low scores on the Job Involvement and Hard Driving and Competitive subscales of the Jenkins Activity Schedule (Jenkins, Zyzanski, & Rosenman, 1979), and high scores on the subscale of Speed and Impatience. Finally, Tolor and Siegel (1989) reported that individuals with high boredom proneness scores have a significantly lowered intention to vote, which fits the description of the boredom-prone individual as inactive (McGiboney & Carter, 1988) and lacking in motivation (Farmer & Sundberg, 1986).

Several researchers (Farmer & Sundberg, 1986; Kass & Vodanovich, 1990; Watt & Ewing, 1996) found BPS scores significantly and positively correlated with scores on Zuckerman's Sensation Seeking Scale (Zuckerman, 1979a). One likely manifestation of the sensation-seeking qualities of boredom proneness is the significant relationship found between BPS scores and pathological gambling (Blaszczynski et al., 1990). Finally, individuals with high BPS scores have been shown to habituate quicker to repeated exposure to the same stimuli (Bornstein, Kale, & Cornell, 1990). Bornstein (1989) speculated that such rapid habituation could have positive survival value. He stated that ". . . it is adaptive to grow bored with stimuli that, after many repeated exposures, have never been associated with any type of positive reinforcement. As a stimulus proves itself to be neither dangerous nor reinforcing, one simply loses interest in it and turns one's attention to other familiar stimuli that have proved to be rewarding" (p. 282).

Personality Variables

Research evidence indicates that BPS scores are linked to a host of personality constructs. For example, BPS scores have been associated with scores on the Eysenck Personality Inventory (Eysenck & Eysenck, 1964). Gordon et al. (1997) found that high BPS scores were correlated with neuroticism, whereas Ahmed (1990) reported a significant correlation between BPS scores and extraversion. Gana and Akremi (1998) and McLeod and Vodanovich (1991) reported that high BPS scores are significantly related to low scores on measures of self-actualization. This negative relationship can be understood by contrasting some of the characteristics of a self-actualized person with that of the boredom-prone individual. For instance, the self-actualizing person has been described as one who is self- and inner-directed (Bordages, 1989), capable of concentration and being absorbed in one's actions (Ellis, 1991; Wexler, 1974), and a productive user of time (e.g., Jones & Crandall, 1986).

On the other hand, people high in boredom proneness have been depicted as lacking in autonomy (e.g., Farmer & Sundberg, 1986), valuing external rather than internal work-related rewards (Vodanovich, Weddle, & Piotrowski, 1997),

and prone to procrastination (e.g., Blunt & Pychyl, 1998; Vodanovich & Rupp, 1999). Other researchers have found that boredom-prone individuals possess a lowered sense of purpose in life (Vodanovich & Watt, 1999; Watt & Vodanovich, 1999; Weinstein, Xie, & Cleanthos, 1995), which generally supports the view of Frankel (1959) that a deficient sense of purpose in one's life is exhibited as boredom. Sommers and Vodanovich (2000) found that individuals with high boredom proneness have higher obsessive–compulsive (OC) scores. However, it should be noted that many of the items on the OC scale involve difficulty with concentration and attention, which may partially account for the significant correlation between BPS and OC scores.

Wink and Donahue (1997) reported that BPS scores are significantly related to two types of narcissism, which they labeled as *overt* (extraversion, sense of rebellion) and *covert* (introversion, feelings of vulnerability). The connection between boredom proneness and narcissism was partly explained by the need of narcissists to overcome their diminished sense of self by seeking excitement and challenge. It is important to note that narcissism has also been found significantly related to boredom susceptibility scores (Emmons, 1981). The relationship between boredom and narcissism has also been discussed from a psychoanalytic perspective (e.g., Altshul, 1977; Weinberger, 1974).

Interpersonal Behavior

Boredom proneness can have consequences for interpersonal activity. One theme in this context is that boredom-prone individuals are highly affected by feelings and are susceptible to the views of others (imagined or real). For instance, Sommers and Vodanovich (2000) reported that boredom proneness is associated with greater interpersonal sensitivity based on scores from the Hopkins Symptom Checklist (Derogatis et al., 1974), which measures the extent to which people report their feelings as being hurt or feeling disliked by others. Related findings were summarized by McGibony and Carter (1988) who found boredom-prone individuals to be more socially dependent, insecure, and easily distressed and influenced by feelings.

Other research in this area has indicated that those with high BPS scores may have difficulty in social situations and in the establishment of relationships. That is, high boredom proneness has been significantly related to lower sociability scores (Leong & Schneller, 1993) and greater alienation (Tolor, 1989). Finally, Watt and Vodanovich (1999) indicated that those with high BPS scores were associated with poorly developed interpersonal relationships.

Social situations may pose problems for boredom-prone individuals, given that these encounters may be perceived as boring. That is, those prone to boredom may view social stimuli (like other environmental stimuli) as relatively uninteresting and banal. This would be especially probable when external stimulation levels are objectively low (e.g., others talking in a slow, monotonous manner). It

is also possible that the reduced attention characteristic of highly boredom-prone people may make social interactions challenging (Leary et al., 1986), especially if various distracters are present, and given the connection between BPS scores and narcissism (Wink & Donahue, 1997), if the conversation does not interest them personally. Under these conditions, those who are boredom prone may come across poorly to others in social gatherings as not being very involved or being indifferent. If this behavior is reciprocated and occurs regularly, understandably the boredom-prone person may feel socially uncomfortable. Although such descriptions are theoretically speculative, they may partially explain some of the findings with regard to difficulty with interpersonal relationships. However, more research is needed to explore the reasons why those with a tendency to be bored find interpersonal gatherings and relationships problematic.

Work Issues

Scores on the BPS have been shown to be associated with work-related concerns. Kass, Vodanovich, and Callander (2001) found that higher BPS scores were significantly related to lower job satisfaction among a sample of manufacturing employees. Outside the context of work, results of two studies showed that boredom proneness was significantly related to decreased life satisfaction scores. That is, Farmer and Sundberg (1986) found this relationship with the Life Satisfaction Index (Neugarten, Havinghurst, & Tobin, 1961), and Watt and Ewing (1996) used the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). The association between boredom proneness and satisfaction levels was suggested by Farmer and Sundberg (1986). Their profile of the boredom-prone individual included ". . . dissatisfaction with one's work and psychological well-being" (p. 14). It is useful to note that evidence for the associations between boredom and job dissatisfaction in studies not using the BPS scale are quite robust (see O'Hanlon, 1981; Smith, 1981).

Sawin and Scerbo (1995) and Kass, Vodanovich, Stanny, and Taylor (2001) found that boredom proneness scores were significantly associated with lowered vigilance performance. Work decrements in tasks requiring sustained attention may be due to the attentional shortcomings common to boredom-prone individuals (e.g., Fisher, 1993; Hamilton, 1981; Hamilton et al., 1984) as well as to their inability to be fully absorbed in activities (Seib & Vodanovich, 1998). Finally, Vodanovich, Weddle, & Piotrowski (1997) found that boredom proneness was related to scores on the Survey of Work Values (Wollack, Goodale, Wijting, & Smith, 1971), which is a scale designed to reflect the ideals of the Protestant Work Ethic. Specifically, they found that highly boredom-prone individuals possessed significantly higher external work values (e.g., pay, social status) whereas those with low BPS scores had greater internal work values (e.g., job involvement, pride in work). Perhaps the relative lack of focus by highly boredom-prone people on internal rewards is reasonable, given that high BPS scores have been

associated with lower autonomy and an amotivational style (Farmer & Sundberg, 1986; Watt & Vodanovich, 1999).

Currently, the BPS is the only measure of boredom that is not limited by the assessment of a specific aspect of the construct (e.g., job boredom, leisure boredom); nor is it a subscale of a larger instrument. Also, consistent with various definitions, the BPS yields scores on multiple facets of boredom, which allows for a more sensitive assessment of boredom levels. As Vodanovich and Kass (1990) have stated ". . . one individual's boredom may be associated with a deficiency in generating internal stimulation, whereas the lack of external stimulation (perceived or real) may be responsible for the other person's boredom" (pp. 118–120).

However, one limitation of the BPS is that it was not initially constructed to assess various factors of boredom. In addition, the development of the BPS was not specifically guided by a unified theory or definition of boredom. Both of these factors have hindered the ability of researchers to find consistent and generalizable subscales on the BPS. Finally, although studies have related BPS scores to clinical and organizational issues, the bulk of the research on the scale has been conducted with student samples, which hinders the practical usefulness of the instrument. Also, norms and cut-off scores for the BPS are not available. Such scores are needed to meaningfully identify individuals with high boredom levels in real-world settings.

Other Boredom Measures

Job Boredom Scales

The Job Boredom Scale, introduced by Grubb (JBS; 1975), consists of 11 items arranged on a 5-point Likert-type scale (e.g., "How monotonous is your job?" "How bored, that is disinterested in doing your job, do you usually feel?"). The responses range from *hardly at all* (1) to *greatly* (5). The JBS comprises two subscales, a three-item Cognitive Scale and an eight-item Affective Scale. The original sample in the development of the scale consisted of 237 autoworkers employed in three different jobs. The jobs included (a) those working in teams involving the installation of a variety of parts, (b) individual assembly line workers assembling single parts, and (c) employees installing complete components with freedom of movement and control over assembly line pacing. The validity evidence consisted primarily of data suggesting that tasks requiring complete production were perceived as less time consuming. Also, there was a trend toward lower job boredom scores for employees involved in complete rather than partial fabrication of a unit. Unfortunately, no reliability evidence was reported by Grubb.

Lee's Job Boredom Scale (LJBS; Lee, 1986) consists of 17 items arranged on a 5-point Likert scale (e.g., "Does monotony describe your job? Does the job go by too slowly?"). A coefficient alpha of .95 was reported on responses of 322 clerical employees (95% women). Validity evidence was provided by significant

negative correlations with overall job satisfaction and scores on the Work on The Present Job scale of the Job Descriptive Index (Smith, Kendall, & Hulin, 1969). Furthermore, Farmer and Sundberg (1986) found a significant positive relationship (r = .49) between the LJBS and the BPS. Kass, Vodanovich, & Callander (2001) found a significant negative relationship between job boredom and job satisfaction using a sample of employees at a manufacturing company. Specifically, all five scales of the Job Descriptive Index were significantly correlated with LJBS scores. The findings also indicated that high job boredom scores were related to greater absenteeism and longer organizational tenure.

The connection between job boredom and absenteeism rates parallels the findings between job satisfaction levels (low) and the number of days missed at work (e.g., Steers & Rhodes, 1978). Also, the significant correlation found between job boredom and tenure supports the findings of Drory (1982) who reported that employees with longer tenure had higher overall boredom levels. Such findings are understandable from the perspective of Landy's (1978) opponent process theory, which has been considered as an approach to describe boredom at work. Consistent with the theory, employees who have been in their jobs for longer periods of time will have greater exposure to the same job stimuli and thus be at a greater risk to experience boredom. As Kass, Vodanovich, and Callander (2001) have stated, this theory proposes that ". . . repeated exposure to the same stimuli (e.g., job tasks) leads to lower levels of arousal, which results in less satisfaction and greater boredom" (p. 324).

An obvious shortcoming of both of these job boredom scales is that they are restricted to the assessment of boredom in work situations. In addition, neither scale has received much empirical attention. Consequently, more research is needed to determine the adequacy of the scales for both research and pragmatic purposes. Although restricted in scope, these job boredom scales may be useful tools to measure the existence of boredom emanating from monotonous or repetitive work and as a guide to assist in the development of more enriched jobs (e.g., Hackman & Oldham, 1976).

Boredom Coping Scale

The Boredom Coping Scale (BC; Hamilton et al., 1984) is made up of 10 items arranged in a forced-choice format (e.g., a choice between "I get bored seeing the same old faces" or "I continue to be interested in familiar, everyday faces"). A high score on the BC scale reflects a greater ability to cope with boredom. The BC items were adapted from items on the Boredom Susceptibility Scale (Zuckerman, 1979a) and items on the Imaginal Process Inventory (Singer & Antrobus, 1970).

The internal consistency (alpha) of the BC scale, administered to 63 high school students, was reported to be .67. A test–retest reliability, assessed across a 1- to 3-week interval on responses of 14 female nursing students, was .64 (Hamilton et al., 1984).

Partial validity evidence was provided by significant, positive correlations between BC scores and scores that reflected sustained attention and self-reports on the amount of time spent alone. BC scores were significantly and negatively related to psychopathology scores on the MMPI (Hathaway & McKinley, 1951) and on data based on the Research Diagnostic Criteria (Spitzer, Endicott, & Robbins, 1978). Finally, BC scores were, somewhat surprisingly, not significantly related to Boredom Susceptibility scores or ratings on the Random Activities Experiential Sampling method, a self-report assessment of daily activity. Hamilton et al. (1984) interpreted this result to indicate that boredom coping may be an ". . . adaptive, coping trait rather than an absolute lack of boredom, per se" and that "BC might be conceptualized as reflecting an active process or attentional capacity that mediates affective shifts back from boredom toward interest and active enjoyment" (Hamilton et al., p. 191).

An examination of BC items indicates that they do not measure coping mechanisms used to offset boredom. Rather, they mostly assess one's reaction to uninteresting or monotonous people and environments. They certainly do not measure the various coping styles (e.g., problem vs. emotion-focused) available to people that have been identified by researchers (e.g., Lazarus & Folkman, 1984). A scale that systematically assesses the ways in which people cope with boredom is needed and would provide a valuable contribution to the boredom literature, particularly as it relates to counseling and clinical applications.

Boredom Susceptibility Scale

The Boredom Susceptibility scale (BS; Zuckerman, 1979a) is perhaps the most widely used measure of the tendency to experience boredom. Perhaps this popularity is due to the fact that the BS scale is one of the four subscales that make up the Sensation Seeking Scale (SSS; Zuckerman, 1979a). The items are arranged in a forced-choice format with two opposing options from which to choose (e.g., "I get bored seeing the same old faces" vs. "I like the comfortable familiarity of everyday friends"; "I have no patience with dull or boring persons" vs. " I find something interesting in almost every person I talk with"). Forms IV and V of the BS scale are the most recent versions of the scale (Zuckerman, 1979a). The primary differences between the two versions involve the number of items included on the forms. That is, Form IV of the BS consists of 18 items in contrast to the 10-item Form V.

In developing Form V, the goal was to select 10 items using a factor analysis that best reflected each factor of the SSS, including the BS subscale. As a result of this analysis, one original BS question ("I like to try new foods that I have never tasted before") was included on the Experience Seeking subscale of the SSS and another item ("I like people who are sharp and witty even if they do sometimes insult others"), previously included within the Disinhibition subscale, was placed on the BS. All other questions in Form V of the BS were included in the earlier Form IV. Results of research examining the relationship between the

scores on Form IV and V of the BS have shown significant correlations between the scales (e.g., $r = .61$) and indicate that the two forms "are strongly related . . . but are not equivalent" (Zuckerman, 1979a, p. 113).

A number of researchers have reported data on the reliability of the BS scale. Split-half reliability coefficients for two different American college samples were reported to be .75 ($N = 160$) and .56 ($N = 41$) for men, and .58 ($N = 170$) and .38 ($N = 51$) for women (Zuckerman, 1979a). Internal consistency estimates, based on a sample of English students, were found to be .65 for men ($N = 254$) and .59 for women ($N = 693$). In an American student sample, the comparable reliabilities were .57 for men ($N = 97$) and .56 for women ($N = 122$) (Zuckerman, Eysenck, & Eysenck, 1978). Equivalent reliability estimates for the BS scale (e.g., $rs = .54$ to .57) have recently been reported (e.g., Glicksohn & Abulafia, 1997; Watt & Ewing, 1996; Zarevski, Marusic, Zolotic, Bunjevac, & Vukosav, 1998).

There is widespread evidence for the validity of the BS scale. Significant correlations have been reported between BS scores (for both Forms IV and V) and a host of personality constructs. For instance, the BS scale has been related to numerous personality variables such as impulsivity (e.g., Daitzman & Tumilty, 1974; Eysenck & Zuckerman, 1978; Zuckerman, 1974), narcissism (e.g., Emmons, 1981), psychoticism (e.g., Eysenck & Zuckerman; Glicksohn & Abulafia, 1997) and extraversion (e.g., Eysenck & Zuckerman; Khavari, Humes, & Mabry, 1977). The BS scale has also been found to possess significant relationships with scores on several personality measures (see Zuckerman, 1979a) including various subscales on the Personality Research Form (e.g., Autonomy, Dominance, Impulsivity, Order), the 16PF (e.g., Dominance, Surgency, Bohemianism), and the Personal Orientation Inventory (e.g., Inner Directedness, Existentiality, Spontaneity).

Boredom susceptibility scores have also been related to an array of "at-risk" behaviors. For instance, high BS scores have been associated with increased drug use (e.g., Beauducel, Brocke, Strobel, & Strobel, 1999; Kaestner, Rosen, & Appel, 1977; Khavari et al., 1977; Kilpatrick, Sutker, & Smith, 1976; Zuckerman, 1972), cigarette smoking (e.g., Carton, Jouvent, & Widloecher, 1994), gambling (Kuley & Jacobs, 1988; Wolfgang, 1988), and reckless and drunk driving (e.g., Arnett, 1990; Furnham & Saipe, 1993). Similarly, high BS scores have been reported to be associated with lower assessments of risk (Zuckerman, 1979b) and a higher frequency of sexual behavior (e.g., Husted & Edwards, 1976; Zuckerman, 1972). In addition, boredom susceptibility has been linked to greater deviant behavior in school (e.g., Wasson, 1981) and greater agreement with criminal cognitions (Egan, McMurran, Richardson, & Blair, 2000).

A shortcoming of the BS is that the vast majority of the items reflect boredom due to a lack of environmental stimulation. That is, the scale was developed to measure ". . . an aversion for repetitive experience of any kind, routine work, or dull and boring people and extreme restlessness under conditions when escape from constancy is impossible" (Zuckerman, 1979a, p. 103). Limiting the assessment of boredom in this manner is incongruent with various conceptualizations

of boredom as a multidimensional construct (e.g., Grubb, 1975; Vodanovich & Kass, 1990). Also, the utility of the BS is constricted by the relatively low internal consistency reliability estimates found for the scale. In summarizing the research on the four subscales of the SSS, Zuckerman commented that "all of these factors, with the exception of BS, have been reliably identified between the sexes and national samples" and that "the scales have shown good internal consistency and retest reliability, again with the exception of the BS" (Zuckerman, 1979a, p. 121). Consequently, the BS is primarily useful for research purposes. This is especially true when the goal is to assess boredom in the context of the need for sensation seeking or environmental stimulation.

Leisure Boredom Scale

The Leisure Boredom Scale (LBS; Iso-Ahola & Weissinger, 1990) contains 16 items that ask people to indicate how they feel about their leisure time (i.e., nonwork hours). The scale items (e.g., "For me, leisure time just drags on and on; Leisure time activities do not excite me") are arranged on a 5-point scale ranging from *strongly disagree* (1) to *strongly agree* (5), with higher scores indicating greater leisure boredom.

The authors of the LBS reported internal consistency reliabilities of .85, .88, and .86 across 3 undergraduate student samples (N = 171, 164, 344, respectively). Similar reliabilities (r = .85, .86) have been confirmed by subsequent research (Iso-Ahola & Crowley, 1991; Weissinger, 1995). The factor structure of the LBS was examined with the sample of 344 undergraduates, and the results indicated the existence of a single factor. Evidence for the construct validity of the scale was provided by significant negative relationships with the following variables: social competence, self-entertainment, self-esteem, intrinsic leisure motivation, leisure satisfaction, leisure ethic, frequency of leisure participation, and satisfaction with physical and mental health. Also, significant, positive relationships were found between single-item measures of frequency and depth of boredom (Iso-Ahola & Weissinger, 1990).

Other research has provided corroborative evidence for the validity of the LBS. For instance, findings from several studies have indicated that high leisure boredom is related to poor ratings of physical and psychological health (Weissinger, 1995), greater substance abuse (Iso-Ahola & Crowley, 1991), and low intrinsic motivation (Iso-Ahola & Weissinger, 1987; Weissinger & Bandalos, 1995; Weissinger, Caldwell, & Bandalos, 1992).

Free Time Boredom Scale

Recently, Ragheb and Merydith (2001) developed an instrument to assess boredom related to unstructured or free time. The Free Time Boredom (FTB) Scale begins with the statement "During my free time" followed by 33-items

arranged on a 5-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5). Factor analytic evidence collected from responses on a sample of state employees and university students (N = 347) indicated that the FTB scale comprises the following four subscales, which accounted for 45% of the variance in FTB scores: Lack of Meaningful Involvement (e.g., "I feel empty"), Lack of Mental Involvement ("New ideas are stimulating"), Slowness of Time ("It feels that time stands still"), and Lack of Physical Involvement ("I do not use a lot of my physical skills"). The internal consistency reliability for the total FTB scale was .92. Reliability estimates for the four subscales ranged from .78 to .91. Also, a short form of the FTB is available which consists of five items per subscale, for a total of 20 questions. The short form has been shown to have comparable reliability to that of the longer 33-item version.

Ragheb and Merydith (2001) found the FTB total and subscale scores (for both the long and short form) to have significant, positive correlations with BPS scores (Farmer & Sundberg, 1986). The authors of the scale also reported that FTB total and subscale scores were significantly associated with two single-item scales (boredom r = .58; satisfaction and interest r = .60) developed by Burisch (1984).

Both the LBS and FTB scales measure an important aspect of boredom: how one perceives and uses nonstructured time. Indeed, Phillips (1993) has suggested that having an abundance of time is central to boredom. Others have concurred that the focus on time passage is an important factor in understanding the structure of boredom (e.g., Drory, 1982, Grubb, 1975; Ornstein, 1970). Wangh (1975) stated that when boredom occurs ". . . our attitude toward time is altered . . . Time seems endless, there is no distinction between past, present, and future. There seems to be only an endless present" (p. 541).

Some researchers have found that increased boredom is associated with poor time structure and organization (Vodanovich & Watt, 1999). In this regard, it may be beneficial to employ the LBS and FTB scales among samples where unstructured time may be plentiful such as the unemployed and retirees. An assessment of boredom in this context may help to identify individuals who are at risk to the hazards of free time and perhaps develop interventions aimed at better time usage. Finally, more research is needed on the relatively new FTB scale to determine its psychometric soundness (e.g., reliability, validity).

Sexual Boredom Scale

The Sexual Boredom Scale (SBS; Watt & Ewing, 1996) is an 18-item self-report measure of one's tendency to experience boredom with the sexual aspects of one's life. Designed for sexually active, nonpsychiatric populations, the SBS contains nine items (labeled Sexual Monotony) that pertain to sexual routine and tedium (e.g., "Sex frequently becomes an unexciting and predictable routine" and "Sex with the same partner can become tiresome over time") and nine items (labeled Sexual Stimulation) that pertain to aspects of sexual excitement

and constraint (e.g., "I would not stay in a relationship that was sexually dull" and "I get very restless if I remain in the same sexual relationship for any length of time"). Responses are given on a 7-point Likert-type scale ranging from *strongly disagree* (1) to *strongly agree* (7), with higher scores indicating greater sexual boredom. High internal consistency reliabilities (*r*s = .92 to .95) have been reported for the SBS across multiple studies (Watt & Ewing, 1996). The authors of the SBS have reported a test–retest reliability coefficient of .81 for a 1-month period.

Compelling convergent validity evidence for the SBS has been shown through positive correlations with the following measures: the Sexual Depression and Sexual Preoccupation subscales of the Sexuality Scale (Snell & Papini, 1989); the Index of Sexual Satisfaction, a measure of dyadic sexual discord (Hudson, Harrison, & Crosscup, 1981); the BPS (Farmer & Sundberg, 1986); and the Boredom Susceptibility, Experience Seeking, and Disinhibition subscales of the SSS (Zuckerman, 1979a). Additional significant, positive correlations have been reported between the SBS and the following: frequency of fantasy about other partners, frequency of sexual thoughts, and liberal attitudes and sex without commitment (Watt & Ewing, 1996). The SBS has been shown to be not correlated with sexual esteem, thrill and adventure seeking, and social desirability and to be negatively associated with Diener, Emmons, Larsen, and Griffin's (1985) Satisfaction With Life Scale (see Watt, 2000; Watt & Ewing, 1996).

The SBS is a promising instrument that assesses boredom with regard to an important, albeit neglected, manifestation of the construct. The scale's utility is also bolstered by the existence of two reliable factors of sexual boredom. If the initial findings on the scale are supported by future research, SBS scores may be useful in therapeutic settings, particularly with regard to relationship counseling. Interventions focusing on skill acquisition, cognitive restructuring, and/or medical or pharmacological approaches may prove beneficial, depending on the reason(s) for sexual boredom. The scores could also aid in the identification of individuals who are prone to engage in risky sexual behavior.

Conclusion

Although research based on the construct of boredom has increased in recent years (e.g., Leong & Schneller, 1993), it has received scarce attention compared with other negative emotions. This relative lack of research is particularly evident with regard to the measurement of boredom. To date, existing measures of boredom are either not based on a thorough theoretical foundation or are limited in scope and application. Some have psychometric shortcomings (e.g., relatively low reliability) or need additional research to determine their adequacy as a viable instrument. Consequently, it would be beneficial for future researchers to focus on the development of additional measures of boredom, particularly those that are both multidimensional and full-scale in nature. Ideally, the construction

of such measures would be guided by an integrated theory and definition of boredom. A consensus on these issues would be invaluable in the development of measures on the construct.

In addition, it would be useful for researchers to differentiate between (and assess) state and trait boredom. Numerous writers have proposed a distinction between situational and dispositional boredom. For instance, Bernstein (1975) differentiated between *responsive* and *chronic* (trait-like) boredom. The term *chronic boredom* was also used by O'Hanlon (1981). Fenichel (1951) used the terms *normal* as opposed to *pathological* boredom, whereas Greenson (1951) contrasted *agitated* versus *apathetic* boredom. In a related vein, it seems imperative to differentiate between the boredom experienced by employees in monotonous jobs, those with an excess of leisure time, and individuals with a lack of meaning in their lives. In a related vein, Phillips (1993) suggested that it is misleading to discuss boredom as a unitary construct. Rather, he stated that it should be referred to as ". . . the boredoms, because the notion itself includes a multiplicity of moods and feelings . . . ." (p. 78).

It may also be worthwhile for future researchers to focus on assessing the criterion-related validity of boredom measures. That is, investigations using overt behavioral measures, as opposed to attitudinal self-report data, would be useful in the psychometric evaluation of boredom scales. It would also be beneficial to perform meta-analytic studies of existing boredom scales. Such an effort could help to better understand the various relationships that have been reported in the literature to date. Finally, data on measures of boredom are needed from samples in clinical, educational, and organizational settings. Such studies should be aimed at determining norms and cutoff scores that may aid in the accurate identification of individuals with various levels of boredom. These scores could be used for a variety of practical purposes such as diagnoses in clinical and educational settings as well as selection and placement decisions in industry.

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