

## Relationships Between Boredom Proneness, Mindfulness, Anxiety, Depression, and Substance Use

Nicole LePera, M.A.  
The New School for Social Research

Boredom proneness has been associated with a wide range of social and psychological problems. According to the attentional theory of boredom proneness, boredom results from a deficit in attention (Harris, 2000). The current study investigated the relationship between mindfulness (the ability to attend to the immediate environment) and boredom proneness, as well as the relationship between mindfulness and negative outcomes such as anxiety, depression, and substance use. Subjects ( $n=138$ ) completed the Boredom Proneness Scale (Farmer & Sundberg, 1986), Mindfulness Attention Awareness Scale (Brown & Ryan, 2003), Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983), and a substance use questionnaire. Results show that boredom proneness correlated positively with anxiety, depression, and substance use, and negatively with mindfulness. In addition, mindfulness correlated negatively with anxiety, depression, and substance use. The current study provides initial evidence regarding the relationship between boredom proneness and mindfulness. Future research addressing the nature of this relationship is of importance, given the need for an intervention to address the negative consequences of boredom.

*Keywords:* boredom proneness, mindfulness, anxiety, depression, substance use

The term boredom is used to refer to a wide range of experiences. In general, the term boredom refers to an aversive subjective state of dissatisfaction attributed to an inadequately stimulating environment (Mikulas & Vodanovich, 1993). Although definitions of boredom vary slightly in content, most definitions incorporate the concepts of environmental monotony and constraint. In order to examine the theorized relationship between boredom and inattention, the current study utilizes the following definition of boredom: A state of dissatisfaction resulting from a combination of an uninteresting environment and attentional constraint (Mikulas & Vodanovich, 1993; Todman, 2003). Given established correlations between boredom and numerous negative outcomes (Blaszczynski, McConaghy, & Frankova, 1990; Caldwell & Smith, 2006; Farmer & Sundberg, 1986; Gordon, Wilkinson, McGown, & Jovanoska, 1997; Paulson, Coombs, & Richardson, 1990), this area of research is important.

The experience of boredom has both situational and individual determinants. When boredom is experienced as a result of external circumstances, it is considered situation-dependent (Todman, 2007). Alternatively, when boredom is considered the result of individual determi-

nants it can be viewed as a personality characteristic that varies in degree across individuals. Trait boredom is referred to as boredom proneness and is operationalized as an individual's susceptibility to experiencing boredom. Whereas state boredom is conceptualized as the actual subjective experience of boredom, trait boredom is conceptualized as the individual's dispositional susceptibility to boredom (Todman, 2007).

### Theory of Boredom

The current investigation focused on internal cognitive factors, namely attention, which has been identified as a causal factor for boredom proneness (Fisher, 1993; Hamilton, 1981; Harris, 2000). As stated above, the two main components of boredom are a monotonous environment and constraint. When these conditions are met, the inability to engage and sustain attention typically results in the experience of boredom (Berlyne, 1960; Carrier, Cheyne, & Smilek, 2008; Damrad-Frye & Laird, 1989; Hebb, 1966). Researchers have theorized that a deficit in attention contributes to the experience of boredom (Fisher, 1993; Hamilton, 1981; Harris, 2000). Boredom is considered an aversive subjective state that results from attempts to allocate attentional resources to an environment that is no longer interesting coupled with the natural tendency to remove attention from such an environment (Todman, 2003). Recently, Harris (2000) proposed the attentional theory of boredom proneness suggesting that this trait is associ-

*Author's Note:*

Correspondence concerning this article can be addressed to Nicole LePera via mail at New School for Social Research, 80 5th Ave, 6th floor, New York, NY 10003 or by email at [Nicole.lepera@gmail.com](mailto:Nicole.lepera@gmail.com).

ated with the inability to regulate attention in a directed, focused manner (Fisher, 1993; Hamilton, 1981).

According to this attentional theory of boredom proneness it is hypothesized that the cultivation of attention should reduce an individual's propensity to experience boredom. Mindfulness is defined as moment-to-moment awareness (Epstein, 1995) with attention directed to what is happening in the present moment (Brown & Ryan, 2003). The positive effects of mindfulness have been investigated in recent decades. Studies have found that mindfulness is negatively associated with anxiety (Kutz, Borysenko, & Benson, 1985), depression (Teasdale, Scott, Moore, Hayhurst, Pope, & Paykel, 2001), and substance abuse relapse (Witkiewitz, Marlatt, & Walker, 2005).

### **Correlates of Boredom and Negative Outcomes**

Research has demonstrated an association between boredom and a wide range of undesirable social and psychological problems. Individuals who score higher on boredom measures, such the Boredom Coping Scale (BCS; Hamilton, Haier, & Buchsbaum, 1984), Boredom Susceptibility Scale (BSS; Zuckerman, 1979), Leisure Boredom Scale (LBS; Iso-Ahola & Weisiger, 1990), and Free Time Boredom Scale (Ragheb & Merydith, 2001) have higher rates of negative behaviors including substance abuse (Paulson, Coombs & Richardson, 1990) and pathological gambling (Blaszczynski, McConaghy, & Frankova, 1990). Boredom has also been linked to decreased academic achievement and increased likelihood of dropping out of school (Caldwell & Smith, 2006). Boredom scores have correlated positively with indexes of depression and anxiety (Gordon et al., 1997), as well as hopelessness and loneliness (Farmer & Sundberg, 1986).

Boredom proneness has also been linked to numerous negative states. Studies have found a correlation between boredom proneness as measured by the Boredom Proneness Scale (BPS; Farmer & Sundberg, 1986), and depression as measured by the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock & Erbaugh, 1961), Minnesota Multiphasic Personality Inventory depression scale (MMPI; Hathaway & McKinley, 1940), and Multiple Adjective Checklist (MAACL; Zuckerman & Lubin, 1985). Relationships have also been found between boredom proneness and anxiety (Gordon, Wilkinson, McGown, & Jovanoska, 1997; Sommers & Vodanovich, 2000), neuroticism (Gordon

et al., 1997), and anxiety and depression as measured by the Hopkins Symptoms Checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). Additionally, research indicates that boredom proneness is linked to behaviors such as increased aggression and hostility (Rupp & Vodanovich, 1997), substance use (Paulson, Coombs, & Richardson, 1990), alcohol dependence (Orcutt, 1984; Todman, 2003; Wiesbeck et al., 1996), and susceptibility to heroin use (Serman, Zinser, Sideroff, & Baker, 1989; Todman, 2003). Positive relationships between BPS scores and personality traits such as impulsivity (Watt & Vodanovich, 1992), impatience, sensation seeking (Kass & Vodanovich, 1990), and self-reflectivity (Seib & Vodanovich, 1998) have been found. Cumulatively, these studies suggest that boredom proneness has social, emotional, and psychological repercussions. Boredom proneness thus seems to be a problematic trait that increases the probability of a range of negative behaviors.

According to this attentional theory of boredom proneness it is hypothesized that the cultivation of attention should reduce an individual's propensity to experience boredom. Mindfulness is defined as moment-to-moment awareness (Epstein, 1995) with attention directed to what is happening in the present moment (Brown & Ryan, 2003). To date, the relationship between mindfulness and boredom has been addressed in only one study. Trunnell, White, Cederquidt, and Braza (1996) found that participation in mindfulness training resulted in a decrease of self-reported boredom. Participants ( $n=164$ ) enrolled in a recreation and leisure course were randomly assigned to two groups. The experimental group participated in a mindfulness meditation training program while the control group did not. Measurements of boredom relied on use of an adjective questionnaire (Ellis, Voelke, & Morris, 1994; Russell & McAuley, 1986; Trunnell et al., 1996). Results of a between subjects mean comparison revealed a significant decrease in boredom at post-test in the experimental group when compared with those in the control group. The authors hypothesized that an increase in attention and engagement explained this decrease in boredom scores (Trunnell et al., 1996). This explanation strengthens the attentional theory of boredom proneness by implicating a deficit in attention as a precursor to boredom proneness (Fisher, 1993; Hamilton, 1981; Harris, 2000).

One major limitation to this study was that a standardized measure of boredom was not utilized. Instead, an affect questionnaire was used that assessed boredom by the degree of pleasure or displeasure in activities (Russell & McAuley, 1986). Results from the study would have been strengthened with the use of a standardized measure, such as the Boredom Proneness Scale, to obtain a reliable assessment of boredom. Despite this limitation, the obtained results are a promising start to the investigation of the relationship between boredom proneness and mindfulness.

Further studying the relationship between mindfulness and boredom proneness has clinical utility given the numerous negative outcomes associated with the construct of boredom proneness. Given that a deficit in attention has been implicated in contributing to boredom proneness, individuals who score low on mindfulness are expected to score high on boredom proneness. Informed by the literature on the negative effects of boredom proneness, it is hypothesized that positive correlations will emerge between boredom proneness and anxiety, depression, and substance use. Additionally, given previous research (Kutz, Borysenko, & Benson, 1985; Teasdale et al., 2001; Witkiewitz et al., 2005) it is hypothesized that mindfulness will be negatively correlated with anxiety, depression, and substance use.

## Method

### Participants

Participants with incomplete data ( $n = 15$ ) were excluded from the analyses, leaving a total of 138 individuals (103 females, 33 males, and 2 who chose not to report their gender) whose scores were retained for analysis. Participants ranged in age from 22 to 70 with a mean age of 31 years ( $SD = 10.7$ ). Participants identified themselves as White (76.1%), Hispanic/Latino (9%), Multiracial (6.5%), Black/African American (5.8%), Asian or Pacific Islander (5.8%), and Other (5.1%).

### Measures

**Boredom proneness.** Trait boredom was measured using the BPS (Farmer & Sundberg, 1986), a 28-item scale with responses coded utilizing a true/false or Likert-scale format. Informed by previous research, the current study used the 7-point Likert-scale (1=

Highly disagree, 7= Highly agree) for increased sensitivity when compared to the true-false format of the instrument (Harris, 2000; Kass & Vodanovich, 1990; McLeod & Vodanovich, 1991; Seib & Vodanovich, 1998; Watt & Vodanovich, 1992). Eighteen items are scored to directly reflect high boredom proneness (e.g., Time always seems to be passing slowly) and ten items are reverse scored (e.g., I find it easy to entertain myself). Higher scores on the BPS reflect higher boredom proneness. Reliability for the 7-point Likert scale version of the BPS is adequate, with correlation coefficients ranging from .72-.75, (Ahmed, 1990; Blunt & Pychyl, 1998; Gana & Akremi, 1998) and test-retest reliability ranging from .79-.91 (Harris, 2000; Kass & Vodanovich, 1990; McLeod & Vodanovich, 1991; Vodanovich, 2003). BPS scores also correlate with other measures of boredom such as self-report ratings of boredom and interest (Farmer & Sundberg, 1986), the BSS (Farmer & Sundberg, 1986; Zuckerman, Eysenck, & Eysenck, 1978), and Lee's Job Boredom Scale (Farmer & Sundberg, 1986; Lee, 1983).

A reliability analysis of the BPS revealed a coefficient alpha of .86. A factor analysis of the scores on the BPS yielded results consistent with a three-factor structure of boredom proneness (Gordon et al., 1997). These factors were similar to results from previous studies suggesting the presence of an attention factor, interest factor, and restlessness factor in the construct of boredom proneness (Vodanovich, 2003). In addition, given previous empirical decisions to compute a composite score for boredom proneness (Ahmed, 1990; Vodanovich, 2003), all items were included in a composite score and used in the analysis.

**Mindfulness.** The Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003) was used to measure mindfulness. Mindfulness is conceptualized as a tendency to hold and sustain attention to what is happening in the present (Brown & Ryan, 2003; Block-Lerner, Salters-Pedneault, & Tull, 2005). The MAAS is a 15-item self-report instrument that asks participants to rate their personal experiences (e.g., I could be experiencing some emotion and not be conscious of it until some time later) on a 6-point Likert scale (1= Almost always, 6= Almost never). Higher scores on the MAAS reflect higher mindfulness. The MAAS demonstrates good reliability with a coefficient alpha of .81 (Brown & Ryan, 2003).

Reliability analysis with the MAAS revealed a coefficient alpha of .89 and factor analysis indicated a single factor solution, which is consistent with past literature (Bear, Smith, Hopkins, Krietemeyer, & Toney, 2006; Baer et al., 2008; Brown & Ryan, 2003).

**Anxiety and Depression.** The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) is a measure of anxiety and depression. The scale was chosen based on its clinical validity in assessing symptoms of anxiety and depression in the non-psychiatric general population (Zigmond & Snaith, 1983). The HADS is a 14-item scale that assesses the presence and severity of anxiety (HAD-A subscale) and depression (HAD-D subscale; Zigmond & Snaith, 1983). Responses were scored on a four point Likert scale, with 6 items reverse-scored (4 in the depression subscale and two in the anxiety subscale). Lower total scores represent low anxiety and/or depression and higher total scores represent high anxiety (e.g., I feel tense or wound up) and/or depression (e.g., I have lost interest in my appearance). The subscales have demonstrated good reliability with HADS-A coefficient alphas ranging from .68-.93 and HADS-D coefficient alphas ranging from .67-.90 (Bjelland, Dahl, Haug, & Neckelmann, 2002; Olsson, Mykletun, & Dahl, 2005). Additionally, a reliability analysis revealed a coefficient alpha of .82 for the composite HADS score (anxiety and/or depression).

A reliability analysis with the HADS revealed a coefficient alpha of .82 and a factor analysis with the Hospital Anxiety and Depression Scale yielded one main component. Consistent with past research (Zigmond & Snaith, 1983), this composite score was utilized in all correlation analyses.

**Substance Use.** The Substance Use Questionnaire was developed to elicit the information needed for the current study. The 15 items used in the current study were adapted from questions included in the Alcohol, Smoking, and Substance Involvement Screening Test (WHO ASSIST Working Group, 2002), a semi-structured interview measuring lifetime and recent (past 3 months) substance use as well as problems related to substance use, risk of current or future harm, dependence, and injection drug use. Because the current study focused on lifetime and recent substance use, the entire questionnaire was not used. Additionally, the

ASSIST instrument, along with other substance use questionnaires, has not been validated for use with the general adult population, where a lower prevalence of substance use problems are to be expected (Lanier & Ko, 2008).

Participants were asked to provide information about their lifetime experience with alcohol and drugs as well as information regarding use of alcohol or drugs in the past 6 months (e.g., In the past 6 months, have you used alcohol?). A comprehensive list of substances was identified and participants were asked to report lifetime and recent use using a 9-point Likert scale (1= Never in lifetime, 5= Two or three times a month, 9= Once a day or more). Reliability analyses with the Substance Use Questionnaire revealed a coefficient alpha of .65. See Table 1 for substance use means. See Appendix for Substance Use Questionnaire.

### Procedure

Subjects were recruited via email blasts and recruitment flyers. Specifically, recruitment flyers were posted around the campus at the New School University in New York City. Email blasts were sent out to all members of the New School Community, as well as members of Filmworks, Inc., YAI Network, and numerous other places of both profit and nonprofit employment in the New York City area. Interested participants were directed to Survey Monkey (an online survey tool) in order to complete the instruments. Participants were required to read an informed consent protocol and indicate their willingness to participate by providing an electronic signature. Following this process, participants completed survey measures in the following order: Mindful Attention Awareness Scale, Hospital Anxiety and Depression Scales, Substance Use Questionnaire, Boredom Proneness Scale and brief demographic items indicating age, sex, and race.

## Results and Discussion

### Correlations Between Measures

Bivariate Pearson correlations were conducted in order to investigate the relationships between mindfulness, boredom proneness, and negative outcomes. Results indicated significant positive correlations between boredom proneness, anxiety and/or depression and substance use. Additionally, significant negative

## BOREDOM PRONENESS, MINDFULNESS &amp; NEGATIVE OUTCOMES

Table 1  
*Frequency of Substance Use*

	<i>N</i>	<i>M</i>	<i>SD</i>
Alcohol	137	5.80	1.91
Tobacco	138	3.51	2.74
Marijuana	138	3.00	2.03
Codeine	137	1.77	1.20
Benzodiazepines	138	1.74	1.49
Cocaine/Crack	137	1.70	1.11
Adderall/Ritalin	138	1.66	1.42
Hallucinogens	138	1.49	0.61
Ecstasy	138	1.43	0.57
Methamphetamine	138	1.18	0.39
Heroin/Opium	138	1.17	0.38
GHB/Rohypnol	137	1.14	0.35
Inhalants	138	1.14	0.46
Barbiturates	137	1.09	0.28
Steroids	138	1.07	0.29

correlations between mindfulness and boredom proneness, anxiety and/or depression, and substance use were found. Table 2 details the obtained correlations. There were no significant age, sex, or ethnic differences that emerged for scores of boredom proneness, anxiety/depression, and substance use.

Research has shown positive relationships between boredom and variables such as substance abuse (Paulson, Coombs & Richardson, 1990), depression (Farmer & Sundberg, 1986), and anxiety (Gordon et al., 1997). The current study continued this line of research and demonstrated consistent results. Despite vast evidence of the detrimental effects of boredom, few studies have addressed the theorized relationship between boredom and inattention. This research supports previous speculation that a deficit in attention may contribute to the development of the boredom prone personality (Fisher, 1993; Hamilton, 1981; Harris, 2000).

Boredom prone individuals may have a diminished ability to be mindful, or sustain attention to their im-

mediate environments in a directed, focused manner (Fisher, 1993; Hamilton, 1981; Harris, 2000). Boredom is a direct function of the cognitive effort required to sustain focused attention (Leary, Rogers, Canfield, & Coe, 1986), therefore training one's attention may increase one's ability to remain stimulated and subsequently decrease boredom (Hamilton, 1981; Seib & Vodanovich, 1998). Boredom has been found to stem from inattention related to both external and internal stimulation (Damrad-Frye & Laird, 1989; Fisher 1998; Seib & Vodanovich, 1998). Internal distractions, such as a tendency to monitor one's moods, or an inability to successfully label one's moods, may result in an inhibited ability to concentrate and engage with the environment (Harris, 2000). Theoretically, mindfulness, which has been found to increase attention to both external and internal stimulation (Anderson, Lau, Segal, & Bishop, 2007; Bishop et al., 2004), may decrease the attentional difficulties associated with boredom proneness.

Table 2  
*Correlations Between All Variables*

	Anxiety/Depression (HADS)	Substance use (composite)	Mindfulness (MAAS)
Boredom Proneness (BPS)	.45**	.28**	-.52**
Anxiety/Depression (HADS)	--	.12	-.39**
Substance use (composite)		--	-.22**

Note: N = 138. \* p < .05, \*\* p < .01.

### Implications

A vast amount of research has illustrated the positive effects of mindful attention, or mindfulness. For instance, mindfulness training programs have been evaluated as a means to treat chronic pain, with results showing decreased subjective ratings of pain, other medical symptoms, and general psychological symptoms (Baer, 2003; Kabat-Zinn, 1982; Kabat-Zinn, Lipworth, & Burney, 1985; Randolph, Caldera, Tacone, & Greak, 1999), as well as enhanced emotional well-being (Astin, 1997; Shapiro, Schwartz, & Bonner, 1998; Williams, Kolar, Reger, & Pearson, 2001). Mindfulness training has also been found to be effective at ameliorating symptoms associated with treatment of medical disorders such as fibromyalgia (Goldberg et al., 1994; Kaplan, Goldenberg, & Galvin, 1993; Teasdale et al., 2000; Williams et al., 2001), psoriasis (Kabat-Zinn et al., 1998), and cancer (Carlson, Ursuliak, Goodey, Angen, & Speca, 2001; Speca, Carlson, Goodey, & Angen, 2000;). Finally, mindfulness training has been found to be effective in treating Axis I disorder symptomatology including anxiety (Kabat-Zinn et al., 1992) and binge eating disorder (Kristeller & Hallett, 1999). The results from the current study are an initial step towards understanding the relationship between mindfulness and boredom. It appears that mindfulness training may also prove beneficial in reducing the negative outcomes associated with boredom proneness.

### Limitations

As the current study utilized correlational analyses, no inference about the direction of the observed relationship can be made. Future studies should utilize an experimental method to directly manipulate of the presence of mindfulness in order to fully understand the nature of the relationship between mindfulness and boredom. Another limitation of the current study was the use of self-report measures. As with any self-report measure, there is a risk of response bias. Additionally, The Substance Use Questionnaire was developed for the current study and is not a standardized measure. Finally, given the possible differences between self-report and actual engagement of sustained attention, one cannot assume that responses to the MAAS accurately describe the tendency to engage attention. A follow-up study should include both the MAAS and an objective measure of attention, such as a continuous performance test, to confirm the correlation between the two measures of attention and further support the proposed relationship between a deficit in attention and boredom.

### Conclusion

Despite the limitations mentioned above, the current study supports previous research illustrating the negative effects of boredom proneness and the positive effects of mindfulness. In addition, these results provide evidence regarding the relationship between mindfulness and trait boredom, highlighting the nega-

tive relationships between the two. Given the need for an intervention that addresses the negative consequences of boredom, continued research that explores the relationship between mindfulness and boredom is of importance. Specifically, future research should investigate the possibility that mindfulness is a mediator between attention and negative outcomes. If a specific pathway between attention and boredom can be uncovered, interventions directed at increasing attentional resources, such as mindfulness, may be implemented in boredom prone individuals to decrease related negative outcomes.

### References

- Ahmed, S. M. (1990). Psychometric properties of the Boredom Proneness Scale. *Perceptual & Motor Skills*, 71, 963-966. doi:10.24z66/PMS.71.7.963-966
- Anderson, N. D., Lau, M. A., Segal, Z. V. & Bishop, S. R. (2007). Mindfulness-based stress reduction and attentional control. *Clinical Psychology & Psychotherapy*, 14(6), 449-463. doi:10.1002/cpp.544
- Astin, J. A. (1997). Stress reduction through mindfulness meditation. *Psychotherapy and Psychosomatics*, 66(2), 97-106. doi:10.1159/000289116
- Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice*, 10(2), 125-143. doi:10.1093/clipsy/bpg015
- Bear, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13, 27-45.
- Baer, R. A., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J. & Sauer, S. (2008). Construct validity of the five facet mindfulness questionnaire in meditating and non-meditating samples. *Assessment*, 15, 329-342.
- Beck A. T., Ward C. H., Mendelson M., Mock J., Erbaugh J., 1961. An inventory for measuring depression. *Archives of General Psychiatry*, 4(6), 561-571. PMID:13688369
- Berlyne, D. E. (1960). *Conflict, arousal, and curiosity*. New York: McGraw-Hill. doi:10.1037/11164-000
- Bishop, S., Lau, M., Shapiro, S., Carlson, L., Anderson, N. & Carmody, J. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice*, 11(3), 230-241. doi:10.1093/clipsy/bph077
- Bjelland, I., Dahl, A. A., Haug, T. T. & Neckelmann, D. (2002). The validity of the Hospital Anxiety and Depression Scale: An updated literature review. *Journal of Psychosomatic Research*, 52, 69-77. doi: 10.1016/S0022-3999 (01)00296-3.
- Blaszczynski, A., McConaghy, N., & Frankova, A. (1990). Boredom proneness in pathological gambling. *Psychological Reports*, 67(1), 35-42. doi:10.2466/PR0.67.5.35-42 PMID:2236416
- Block-Lerner, J., Salters-Pedneault, K., & Tull, M. (2005). Assessing mindfulness and experiential acceptance: Attempts to capture inherently elusive phenomena. In S. M. Orsillo & L. Roemer (Eds.) *Acceptance and mindfulness-based approaches to anxiety*. New York: Springer.
- Blunt, A., & Pychyl, T. A. (1998). Volitional action and inaction in the lives of undergraduate students: State orientation, procrastination, and proneness to boredom. *Personality and Individual Differences*, 24(6), 837-846. doi:10.1016/S0191-8869(98)00018-X
- Brown, K. W. & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822-848. doi:10.1037/0022-3514.84.4.822 PMID:12703651
- Caldwell, L. L. & Smith, E. A. (2006). Leisure as a context for youth development and delinquency prevention. *The Australian and New Zealand Journal of Criminology*, 39, 398-418. doi:10.1375/acri.39.3.398
- Carlson, L. E., Ursuliak, Z., Goodey, E., Angen, M., & Specia, M. (2001). The effects of a mindfulness meditation-based stress reduction program on mood and symptoms of stress in cancer outpatients: 6-month follow-up. *Supportive Care in Cancer*, 9, 112-123. doi:10.1007/s005200000206
- Carrier, J., Cheyne, J.A., & Smilek, D. (2008). Everyday attention lapses and memory failures: The affective consequences of mindlessness. *Consciousness and Cognition*, 17, 835-847. doi:10.1016/j.concog.2007.04.008
- Cheyne, J. A., Carriere, J. S., & Smilek, D. (2006). Absent-mindedness: Lapses of conscious awareness and everyday cognitive failures. *Consciousness and Cognition*, 15(3), 578-592. doi:10.1016/j.concog.2005.11.009 PMID:16427318
- Damrad-Frye, R. & Laird, J. D. (1989). The experience of boredom: The role of the self-perception of attention. *Journal of Personality & Social Psychology*, 57(2), 315-320. doi:10.1037/0022-3514.57.2.315
- Derogatis, L. R., Lipman, R. S., Rickels, K., Uhlenhuth, E. H. & Covi, L. (1974). The Hopkins Symptom Checklist (HSCL): A self-report symptom inventory. *Behavioral Science*, 19(1), 1-15. doi:10.1002/bs.3830190102 PMID:4808738
- Ellis, G. D., Voelkl, J. E., Morris, C. (1994). Measurement and analysis issues with explanation of variance in daily experience using the flow model. *Journal of Leisure Research*, 26(4), 337-356.
- Epstein, M. (1995). *Thoughts without a thinker: Psychotherapy from a Buddhist perspective*. New York: Basic Books.
- Farmer, R. & Sundberg, N. D. (1986). Boredom proneness: The development and correlates of a new scale. *Journal of Personality Assessment*, 50(1), 4-17. doi:10.1207/s15327752jpa5001\_2 PMID:3723312
- Fisher, C. D. (1993). Boredom at work: A neglected concept. *Human Relations*, 46(3), 395-417. doi:10.1177/001872679304600305
- Gana, K. & Akremi, M. (1998). French adaptation and validation of the Boredom Proneness Scale (BP). *L'année Psychologique*, 98(3), 429-450. doi:10.3406/psy.1998.28576
- Geiwitz, P. (1966). Structure of boredom. *Journal of Personality & Social Psychology*, 3(5), 592-600. doi:10.1037/h0023202 PMID:5939611

- Goldenberg, D. L., Kaplan, K. H., Nadeau, M. G., Brodeur, C., Smith, S., & Schmid, C. H. (1994). A controlled study of a stress-reduction, cognitive-behavioral treatment program in fibromyalgia. *Journal of Musculoskeletal Pain*, 2, 53–66. doi:10.1300/J094v02n02\_05
- Gordon, A., Wilkinson, R., McGown, A., & Jovanoska, S. (1997). The psychometric properties of the boredom proneness scale: An examination of its validity. *Psychological Studies*, 42, 85–97.
- Greenson, R. R. (1953). On boredom. *Journal of the American Psychoanalytic Association*, 1(1), 7–21. doi:10.1177/000306515300100102 PMid:13022431
- Hamilton, J. A. (1981). Attention, personality, and the self-regulation of mood: Absorbing interest and boredom. *Progress in Experimental Personality Research*, 10, 281–315.
- Hamilton, J. A., Haier, R. J., & Buchsbaum, M. S. (1984). Intrinsic enjoyment and boredom coping scales: Validation with personality, evoked potential and attention measures. *Personality & Individual Differences*, 5(2), 183–193. doi:10.1016/0191-8869(84)90050-3
- Harris, M. B. (2000). Correlates and characteristics of boredom proneness and boredom. *Journal of Applied Social Psychology*, 30(3), 576–598. doi:10.1111/j.1559-1816.2000.tb02497.x
- Hathaway, S. R., & McKinley, J. C. (1940). A multiphasic personality schedule (Minnesota): I. Construction of the schedule. *Journal of Psychology*, 10, 249–254. doi:10.1080/00223980.1940.9917000
- Hebb, D. O. (1966). *A textbook of psychology*. Philadelphia, PA: Saunders.
- Iso-Ahola, S. E., & Weisiger, E. (1990). Perceptions of boredom in leisure: Conceptualization, reliability, and validity of the Leisure Boredom Scale. *Journal of Leisure Research*, 22(1), 1–7.
- Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain based on the practice of mindfulness meditation. *General Hospital Psychiatry*, 4(1), 33–47. doi:10.1016/0163-8343(82)90026-3
- Kabat-Zinn, J., Lipworth, L., & Burney, R. (1985). The clinical use of mindfulness meditation for the self-regulation of chronic pain. *Journal of Behavioral Medicine*, 8(2), 163–190. doi:10.1007/BF00845519
- Kabat-Zinn, J., Massion, M. D., Kristeller, J., Peterson, L. G., Fletcher, K. E., Pbert, L., et al. (1992). Effectiveness of a meditation-based stress reduction program in the treatment of anxiety disorders. *American Journal of Psychiatry*, 149(7), 936–943. PMid:1609875
- Kabat-Zinn, J., Wheeler, E., Light, T., Skillings, Z., Scharf, M. J., Cropley, T. G., et al. (1998). Influence of a mindfulness meditation-based stress reduction intervention on rates of skin clearing in patients with moderate to severe psoriasis undergoing phototherapy (UVB) and photochemotherapy (PUVA). *Psychosomatic Medicine*, 50, 625–632.
- Kaplan, K. H., Goldenberg, D. L., & Galvin, N. M. (1993). The impact of a meditation-based stress reduction program on fibromyalgia. *General Hospital Psychiatry*, 15, 284–289. doi:10.1016/0163-8343(93)90020-0
- Kass, S. J., & Vodanovich, S. J. (1990). Boredom proneness: Its relationship to Type A behavior pattern and sensation seeking. *Psychology: A Journal of Human Behavior*, 27(3), 7–16.
- Kristeller, J. L., & Hallett, C. B. (1999). An exploratory study of a meditation-based intervention for binge eating disorder. *Journal of Health Psychology*, 4(3), 357–363. doi:10.1177/135910539900400305
- Kutz, I., Borysenko, J. Z., & Benson, H. (1985). Meditation and psychotherapy: a rationale for the integration of dynamic psychotherapy, the relaxation response, and mindfulness meditation. *American Journal of Psychiatry*, 142(1), 1–8. PMid:3881049
- Lanier, D., & Ko, S. (2008). Screening in Primary Care Settings for Illicit Drug Use: Assessment of Screening Instruments — A Supplemental Evidence Update for the U.S. Preventive Services Task Force. Evidence Synthesis No. 58, Part 2. AHRQ Publication No. 08-05108-EF-2. Rockville, Maryland: Agency for Healthcare Research and Quality.
- Leary, M. R., Rogers, P. A., Canfield, R. W., & Coe, C. (1986). Boredom in interpersonal encounters: Antecedents and social implications. *Journal of Personality and Social Psychology*, 51, 968–975. doi:10.1037/0022-3514.51.5.968
- Lee, T. W., (1983, October). Development and validation of a measure of job boredom. Paper presented at the meetings of the Oregon Psychological Association, Salem, OR.
- McLeod, C. R., & Vodanovich, S. J. (1991). The relationship between self-actualization and boredom proneness. *Journal of Social Behavior and Personality*, 6(5), 137–146.
- Mikulas, W. L., & Vodanovich, S. J. (1993). *The essence of boredom*. *Psychological Record*, 43, 3–12.
- Olsson, I., Mykletun, A., & Dahl, A. A. (2005). The hospital anxiety and depression rating scale: A cross-sectional study of psychometrics and case finding abilities in general practice. *BMC Psychiatry*, 5.
- Orcutt, J. D. (1984). Contrasting effects of two kind of boredom on alcohol use. *Journal of Drug Issues*, 14, 161–173.
- Paulson, M. J., Coombs, R. H., & Richardson, M. A. (1990). School performance, academic aspirations, and drug use among children and adolescents. *Journal of Drug Education*, 20(4), 289–303. PMid:2286876
- Ragheb, M. G., & Merydith, S. P. (2001). Development and validation of a unidimensional scale measuring free time boredom. *Leisure Studies*, 20, 41–59. doi:10.1080/02614360150205492
- Randolph, P. D., Caldera, Y. M., Tacone, A. M., & Greak, M. L. (1999). The long-term combined effects of medical treatment and a mindfulness-based behavioral program for the multidisciplinary management of chronic pain in west Texas. *Pain Digest*, 9, 103–112.
- Rupp, D. E., & Vodanovich, S. J. (1997). The role of boredom proneness in self-reported anger and aggression. *Journal of Social Behavior and Personality*, 12(4), 925–936.
- Russell, D., & McAuley, E. (1986). Causal attributions, causal dimensions, and affective reactions to success and failure. *Journal of Personality and Social Psychology*, 50, 1174–1185. doi:10.1037/0022-3514.50.6.1174
- Seib, H. M., & Vodanovich, S. J. (1998). Cognitive correlates of boredom proneness: The role of private self-consciousness and absorption. *Journal of Psychology*, 132(6), 642–652. doi:10.1080/00223989809599295 PMid:9857501

## BOREDOM PRONENESS, MINDFULNESS & NEGATIVE OUTCOMES

- Serman, J. E., Zinser, M. C., Sideroff, S. I., & Baker, T. B. (1989). Subjective dimensions of heroine urges: Influence of heroine-related and affectively negative stimuli. *Addictive Behaviors*, 14(6), 611-623. doi:10.1016/0306-4603(89)90003-8
- Shapiro, S. L., Schwartz, G. E., & Bonner, G. (1998). Effects of mindfulness-based stress reduction on medical and premedical students. *Journal of Behavioral Medicine*, 21(6), 581-599. doi:10.1023/A:1018700829825
- Sommers, J. & Vodanovich, S. J. (2000). Boredom proneness: Its relationship to psychological and physical health symptoms. *Journal of Clinical Psychology*, 56(1), 149-155. doi:10.1002/(SICI)1097-4679(200001)56:1<149::AID-JCLP14>3.0.CO;2-Y
- Specia, M., Carlson, L. E., Goodey, E., & Angen, M. (2000). A randomized, wait-list controlled clinical trial: The effect of a mindfulness meditation-based stress reduction program on mood and symptoms of stress in cancer outpatients. *Psychosomatic Medicine*, 62, 613-622. PMID:11020090
- Teasdale, J. D., Scott, J., Moore, R. G., Hayhurst, H., Pope, M. & Paykel, E. S. (2001). How does cognitive therapy prevent relapse in residual depression? Evidence from a controlled trial. *Journal of Consulting and Clinical Psychology*, 69(3), 347-357. doi:10.1037/0022-006X.69.3.347 PMID:11495165
- Teasdale, J. D., Scott, J., Moore, R. G., Hayhurst, H., Pope, M., & Paykel, E. S. (2001). How does cognitive therapy prevent relapse in residual depression? Evidence from a controlled trial. *Journal of Consulting and Clinical Psychology*, 69(3), 347-357. doi:10.1037/0022-006X.69.3.347
- Teasdale, J. D., Williams, J. M., Soulsby, J. M., Segal, Z. V., Ridgeway, V. A., & Lau, M. A. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology*, 68(4), 615-623. doi:10.1037/0022-006X.68.4.615
- Todman, M. (2003). Boredom and psychotic disorders: cognitive and motivational issues. *Psychiatry*, 66(2), 146-167. doi:10.1521/psyc.66.2.146.20623
- Todman, M. (2007, July). Psychopathology and boredom: A neglected association. Paper presented at the International Conference on Psychology, Athens, Greece.
- Trunnell, E. P., White, F., Cederquist, J., & Braza, J. (1996). Optimizing an outdoor experience for experiential learning by decreasing boredom through mindfulness training. *The Journal of Experiential Education*, 19(1), 43-49.
- Vodanovich, S. J. (2003). Psychometric measures of boredom: a review of the literature. *The Journal of Psychology*, 137(6), 569-595. doi:10.1080/00223980309600636 PMID:14992349
- Watt, J. D. & Vodanovich, S. J. (1992). Relationship between boredom proneness and impulsivity. *Psychological Reports*, 70, 688-690. doi:10.2466/PR0.70.3.688-690 PMID:1620756
- WHO ASSIST Working Group (2002). The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST): Development, reliability and feasibility. *Addiction*, 97, 1183-1194.
- Wiesbeck, G. A., Wodarz, N., Mauerer, C., Thome, J., Jakob, F. & Boening, J. (1996). Sensation seeking, alcoholism and dopamine activity. *European Psychiatry*, 11(2), 87-92. doi:10.1016/0924-9338(96)84785-7
- Witkiewitz, K., Marlatt, G. A., & Walker, D. D. (2005). Mindfulness-based relapse prevention for alcohol and substance use disorders. *Journal of Cognitive Psychotherapy*, 19(3), 211-228. doi:10.1891/jcop.2005.19.3.211
- Williams, K. A., Kolar, M. M., Reger, B. E., & Pearson, J. C. (2001). Evaluation of a wellness-based mindfulness stress reduction intervention: A controlled trial. *American Journal of Health Promotion*, 15(6), 422-432.
- Witkiewitz, K., Marlatt, G.A., & Walker, D.D. (2005). Mindfulness-based relapse prevention for alcohol use disorders: the meditative tortoise wins the race. *Journal of Cognitive Psychotherapy*, 19(3), 221-228.
- Zigmond A. S., & Snaith R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67(6), 361-70. doi:10.1111/j.1600-0447.1983.tb09716.x PMID:6880820
- Zuckerman, M. (1979). *Sensation seeking: beyond the optimal level of arousal*. Hillsdale, NJ: Erlbaum.
- Zuckerman, A. S., Eysenck, S., & Eysenck, H. J. (1978). Sensation seeking in England and America: Cross-cultural, age and sex comparisons. *Journal of Consulting and Clinical Psychology*, 46(1), 139-149. doi:10.1037/0022-006X.46.1.139
- Zuckerman, M., & Lubin, B. (1985). *Manual for the Multiple Affect Adjective Check List Revised*. San Diego, CA: Educational and Industrial Testing Service.

# LEPERA

## Appendix

### Substance Use Questionnaire

Please answer the following questions to provide information regarding your lifetime experience [use other than that required for medical reasons] with alcohol and drugs as well as information regarding your use of alcohol or drugs in the past 6 months. Please remember all of your responses are confidential.

**In the past six months, have you used.....**

#### **Tobacco Products (Cigarettes, Cigars, Pipes, Chewing Tobacco)**

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

#### **Alcohol**

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

#### **Marijuana, Hashish**

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

#### **Cocaine, Crack**

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

#### **Amphetamine or Methamphetamine**

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

#### **Adderall, Ritalin**

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

#### **Benzodiazepines (Xanax, Valium, Librium, Klonopin, etc)**

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

## BOREDOM PRONENESS, MINDFULNESS & NEGATIVE OUTCOMES

### Barbiturates (Phenobarbital)

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

### Hallucinogens (LSD, PCP, psilocybin)

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

### Heroin, Opium

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

### Codeine, Morphine, Vicodin, Percocet, Oxycotin

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

### Inhalants(nitrous, glue, petrol, paint thinner, etc.)

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

### Steroids

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

### MDMA

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more

### GHB, Ketamine, Rohypnol

1	2	3	4	5	6	7	8	9
Never in lifetime	Never in past six months	Less than once a month	About once a month	Two or three times a month	Once or twice a week	Three or four times a week	Nearly everyday	Once a day or more