

Boredom, Hallucination-proneness and Hypohedonia in Schizophrenia and Schizoaffective Disorder

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ABSTRACT

Studies of boredom and boredom proneness in non-psychiatric and clinical populations have demonstrated that trait and state boredom are associated with depressive mood and a number of other untoward outcomes, many of which are potentially relevant to the care of patients with a severe and persistent mental illness (SPMI). For example, in a recent study conducted with college students, it was found that the impact of boredom on the quality of life and degree of unpleasantness attributed to boredom were positively correlated with a measure of hallucination-proneness (Todman, 2007). The present study replicated and extended these findings in a small sample of SPMI patients. As predicted, anhedonia (i.e., expectancies of diminished positive reinforcement from future environments and activities), hallucination-proneness, a history of auditory hallucinations, and feelings of depression within last 14 days were all found to have significant positive correlations with various aspects of the State Boredom Measure (SBM). The findings also underscore the importance of boredom as a potential marker for current substance use and suggest that the attributions made by patients with schizoaffective disorder about their experience with boredom are different to those made by patients with schizophrenia or bipolar illness.

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INTRODUCTION

As in the case with other negative emotions, boredom is an affect that we constantly strive to limit and avoid - sometimes to the point of preoccupation. And like anxiety, boredom has an important signal function: it informs us that the behavioral strategies currently in use have ceased to be effective in extracting novelty and positive reinforcement from a given environment. For most clinicians, however, boredom has remained largely irrelevant to serious discussions about psychopathology. Hence, there are no questions about its frequency or severity on the standard psychiatric interview, nor are there instruments that are routinely used in clinical settings to assess an individual's susceptibility to boredom.

It is difficult to provide a definitive reason for this neglect, but there are probably at least four factors that have played a role obscuring the importance of the role of boredom in the manifestation of psychopathology. The first and perhaps most obvious reason is that it is an extraordinarily ubiquitous emotion. Too common, some would argue, to serve as a useful cue in the exploration of the complex, inner life of another individual. A second reason is probably due to the prominent role that the construct of anxiety has played in Freudian psychoanalysis and other early theories of psychopathology. In psychoanalytic theory, anxiety (and its variants of fear and terror) was conceived as the central and determinative emotion in psychological adjustment and maladjustment. Boredom, on the other hand, was seldom mentioned in early psychoanalytic discourse and was seen by most theorists as having very little to contribute to the grand theatre of the mind. A third reason, albeit one that is somewhat more difficult to validate, is the observation that complaints of persistent boredom are often attributed to something akin to a weakness of character. Like the habitual drug user or the overeater, individuals who are frequently bored are perceived to be making a conscious *choice* to live their lives in ways that perpetuate their feelings of boredom. After all, the solution seems simple enough: find environments and tasks that capture and hold one's interest and then make the effort to ensure that they can be accessed on a regular basis (ironically, full-fledged substance dependence is one such solution).

The fourth and final reason, and something that will figure prominently in the current thesis, is the notion that the effects of boredom are often hidden from view, exacerbating co-existing problems or giving rise to problems that would otherwise not exist. Indeed, precisely because boredom is so undervalued as a clinical symptom, clinicians seldom inquire about its frequency and intensity, and patients, for their part, almost never spontaneously volunteer information about its prevalence in their daily lives. This is made all the more interesting by the fact that clinicians routinely inquire about anhedonia (i.e., loss or reduction in interest in activities that were formerly pleasurable and/or interesting) despite its obvious phenomenological and conceptual similarities with the construct of boredom.

But what are we to make those cases where the experience of boredom is unrelenting or unusually intense, or where it has become reliably associated with an unusually large proportion of the activities and environments that are valued and prescribed by the host culture? Is the information conveyed by such conditions as trivial and irrelevant as current clinical practice would seem to suggest? Research over the last

30 years would seem to strongly suggest that the answer to this question is a resounding “no”. Numerous studies, across broad range of populations, have clearly demonstrated that there are significant individual and group differences in the susceptibility to boredom (e.g., Sundberg et al., 1991) and that a high level of boredom proneness, assessed psychometrically, is associated with a wide range of untoward outcomes and characteristics, including alcohol dependence in men (Orcutt, 1984; Wiesbeck et al., 1996), reduced sociability (Leong and Schenller, 1993), and higher levels of negative affect, including hostility (e.g., Farmer and Sundberg, 1986; Gordon, Wilkerson, McGown and Jovanoska, 1997)

Consistent with this growing awareness of the possible clinical importance of boredom, Todman has attempted to make the argument on the basis of evidence from case studies that there are unrecognized, clinically relevant boredom-related adaptations and responses that are often present among the severely and persistently ill (SPMI). He has also suggested that changes in reported boredom might be an important warning sign of a worsening clinical status (Todman, 2003).

More recently, we have been able provide some direct and indirect empirical support for notion that boredom plays an important role in the course and symptom manifestations in psychosis and other forms of psychopathology. For example, we have been able to demonstrate in a non-clinical sample that both state and trait boredom are associated with psychometrically assessed levels of anhedonia and hallucination-proneness, with persistent state boredom also being predictive of current drug use (Todman, 2007) . In yet another study, this time with methadone patients, we have also found that persistent levels of state boredom are positively associated with global measures psychiatric symptom severity and continued use of opioids based on urine toxicology results (Rajaratnam, et al., 2007; Todman, 2007).

The research described in this chapter can be viewed as an extension of the line of inquiry that began with a series of case studies and continued with the aforementioned research with college students and methadone patients (Todman, 2003;2007). The latter studies provided support for the hypothesized relationships between boredom and measures of anhedonia, hallucination-proneness, symptom severity and substance use, but were limited by the fact that they did not include patients with actual psychotic disorders. The current research was an attempt to determine whether similar relationships can also be found in a heterogeneous sample of SPMI, consisting of individuals with schizophrenia, schizoaffective disorder and mood disorders.

Importantly, the observed relationship between boredom and anhedonia in non-clinical samples is actually a negative one, suggesting that persistent feelings of boredom engender a type of abstinence or interest-craving syndrome. This counter-intuitive relationship, Todman has suggested, reflects an exaggeration of the normal response to a monotonous experience – the seeking of a more interesting environment (Todman, 2007). Consequently, of particular interest in the current study was the question of whether boredom, a negative affect with an inverse relationship to anhedonia in a non-clinical population assumed a positive relationship to anhedonia in a sample of individuals with schizophrenia and schizoaffective disorder. As explained below, we are of the opinion that anhedonia and boredom exist on functional continuum of severity, with anhedonia occurring when a persistently bored individual concludes that the source of their boredom is internal, uncontrollable, inescapable and permanent. We conjectured that this was far

more likely to occur in the case of individuals with severe and persistent mental illnesses such as schizophrenia or schizoaffective disorder.

Another question of interest revolved around the inter-correlations between boredom, anhedonia and depressed mood. Since the diagnosis of schizoaffective disorder requires that a mood episode be present for a substantial portion of the duration of the illness, there was the expectation that boredom would be more pervasive in schizoaffective disorder than in schizophrenia. Finally, we also wanted to determine whether boredom was associated with actual history of clinical hallucinations (rather than psychometrically determined hallucination-proneness); and whether current substance abuse status could be discerned on the basis of boredom prevalence, as was found to be the case in other populations.

However, before describing the study and its rationale in greater detail, it would be helpful to review some of the key constructs and issues associated with study of boredom and monotony.

Defining Boredom

Boredom is as difficult to define as it is commonplace, and attempts to do so have generally failed to satisfy almost everyone. The research that will be described in the following pages has been guided by a definition that is similar to the views of several different authors, including that of Mikulaus and Vodanovich (1993) who have proposed that boredom is a ‘state of low arousal and dissatisfaction, which is attributed to an inadequately stimulating situation’ (p.3).

Although our own definition is similar to that of Mikulaus and Vodanovich, there are some important differences worth mentioning. First, Mikulaus and Vodanovich believe that the feeling of constraint is not an integral part of the boredom experience. However, we are very much of the opinion (as are most other researchers in the field) that *attentional constraint* is both central and critical to the experience of boredom. The source of the disagreement appears to be in how the term ‘constraint’ is defined. Mikulaus and Vodanovich (1993) appear to restrict its meaning to external constraints, stating, for example, that “constraints take many forms including physical, social, legal and practical/financial” (p. 7). However, we would contend that the most important constraints are probably psychological in nature, as they include the covert coping strategies (e.g., daydreaming) that we all employ to deal with monotonous environments. If these strategies are inefficient or inaccessible, then, for all intents and purposes, they are constraints.

Second, there is the issue of Mikulaus and Vodanovich’s ‘inadequately stimulating situation’, which we contend should be replaced with the construct of ‘*uninteresting environments*’. Individuals are not just stimulated by environments, they explore them physically and psychologically (Csikszentmihali, 2000). This emphasis on reciprocity makes explicit the widely assumed Interest-Boredom continuum and makes obvious the fact that individuals learn not only how to cope with boredom, but also how to *anticipate* it by monitoring their capacity to sustain interest in a particular endeavor. Indeed, this is a critical point when considering the capacities of cognitively compromised populations such as individuals with schizophrenia and schizoaffective disorder.

Boredom can also be defined by its adaptive function, and like anxiety, it is generally assumed to have a signaling function with respect to an individual's relationship to a given environment. Specifically, it is a cue that the current strategy for exploring a particular environment has exhausted all available stores of novelty and positive reinforcement (Todman, 2003). Despite its similarity to depression, Todman has suggested elsewhere that there are important differences between the two. The most important distinction lies in the fact that depressed/sad mood is a consequence of the conviction that *negative reinforcement* is inevitable and beyond one's control (e.g., Alloy et al., 1984). Bored individuals, by contrast, are convinced that *positive reinforcement* is no longer attainable and beyond their control (Todman, 2003; 2007)

Finally, there is the important trait vs. state boredom distinction; a distinction that is not always made clear in the extant literature. The subjective experience of boredom results from an interaction between individual differences in the predisposition to perceive environments as monotonous and variations in the intrinsic capacity of environments to evoke feelings of sameness. Consequently, any serious study of boredom obligates the researcher to distinguish between the concept of *susceptibility to boredom (trait boredom)* and the actual *experience of boredom (state boredom)*.

There are now several well-validated psychometric scales such as the Boredom Proneness Scale (BPS; Farmer & Sundberg, 1986) and the Boredom Susceptibility Scale (BSS; Zukerman, 1979) that are routinely used to assess trait boredom. Indeed, the development of the BPS, in particular, has been a major catalyst in the growth of research on boredom over the last 20yrs. By contrast, state boredom has been typically assessed using ad hoc single-item measures that require the individual to indicate (usually on a Likert-type scale) the degree to which they currently feel bored or have felt bored during a recent time period. The State Boredom Measure (SBM; Todman, 2004), the state measure that is employed in the current study represents an attempt to develop a more structured and systematic method for assessing state boredom. The scale is described in greater detail below and appears in Appendix 1.

It is important to appreciate that the trait-state distinction is more than an academic exercise. For example, if a measure of trait boredom was found to be positively associated with an important outcome such as relapse among recovering addicts, it would be important to know whether prolonged exposure to intrinsically monotonous environments in otherwise low boredom prone individuals produced the same effect. Since environments are usually easier to modify (or avoid) than personality traits, the clinical implications in this hypothetical scenario are obvious.

Boredom, Anhedonia and Hallucination-Proneness in Non-Clinical Samples

Anhedonia: Todman has suggested that it might be useful, at least heuristically, to think of boredom as a multi-dimensional construct, along the lines depicted in Figure 1 (Todman, 2007). In this model, the dimensions represent *expectancies* about future encounters with new environments, and anhedonia is construed as a type of boredom that

is distinguished by extremely high levels of persistence (high frequency/duration) and ubiquity (high extensiveness/ubiquity). Such a state would ultimately give rise to the apathy and disinterest in the future that tends to characterize episodes full-blown anhedonia. In other words, the anhedonic individual is inclined to make attributions about the source, controllability and permanence of their uninteresting existence in a way that effectively shuts down pleasure seeking and expectations of novelty and positive reinforcement. By contrast, we hypothesized that in the case of chronically bored individuals the experience is not apathy but rather an abstinence-like, hedonic-deficit state that manifests itself in the form of exaggerated compensatory subjective craving for positively reinforcing (i.e., interesting) experiences. We therefore expected that this hedonic deficit would result in a negative association between measures of anhedonia and feelings of persistent/frequent boredom in populations where the prevalence of an anhedonic adaptation to persistent boredom was assumed to be low (e.g., among college students). In the study described in this chapter, we anticipated that among SPMI patients, an anhedonic adaptation (i.e., attributions of uncontrollability, ubiquity, and permanence) to persistent boredom would be more far more common than in non-clinical populations and would result in a positive association between boredom and anhedonia.

Hallucination-Prone: There is of course a considerable amount of anecdotal evidence that suggests that psychotic patients are more likely to hallucinate under conditions of extreme over-stimulation and under-stimulation. However, the hypothesized boredom-hallucination-prone association was based on two intersecting points that were originally articulated in the context of a published case study that involved hallucinatory behavior as coping strategy for boredom (Todman, 2003). First, is the widely accepted view among researchers that hallucinations are not pathognomonic of mental illness and, in fact, are quite common in the general population (Slade & Bentall, 1988). Second, there is the observation that the environmental conditions that have been shown to promote and exacerbate hallucinations in hallucination-prone individuals are strikingly similar to the conditions that are known to induce feelings of boredom (i.e., stimuli that are high in redundancy, of low complexity, and which provide limited opportunities for engagement or exploration) (Margo et al, 1981). Hence the expectation of a boredom-hallucination-prone association.

The predicted associations between boredom and hallucination proneness, and boredom and anhedonia were tested in a sample of 84 participants that had been recruited from the student population at the New School for Social Research. Demographically, the sample consisted of 60 women and 24 men, ranging in age from 18 to 42 years of age (Mean age= 28.7, SD= 9.5) and was 78% Caucasian, 12% Asian, 5% African American, 3% Hispanic, and 2% other. The participants were administered the following measures in a large group setting: The Boredom Proneness Scale (BPS; Farmer and Sundberg, 1986), a measure of trait boredom; The Boredom Susceptibility Scale (BSS; Zukerman, 1979), another measure of trait boredom; The Launay-Slade Hallucination Scale (LSHS; Launay & Slade, 1981; Slade & Bentall, 1988), a measure of hallucination-prone; The State Boredom Measure (SBM; Todman, 2004; see Appendix 1.), a measure of state boredom; and a modified version of The Snaith-Hamilton Pleasure Questionnaire (SHPQ-M; Snaith & Hamilton, 1995), a measure of anhedonia. With the exception of the SBM, all of the measures were administered only once. The SBM was administered a second time, approximately one month after the first administration.

The scores for each of the eight items on the SBM were summed across the two administrations to yield a single composite score for each item, thus reflecting the degree to which reported levels of boredom were sustained over the one-month period. In keeping with the hypothesized existence of the exaggerated, abstinence-like state described, boredom frequency (SBM1) and boredom duration (SBM2) over the preceding two weeks were both found to be positively correlated with scores on the SHPQ-M. (note: lower scores on the modified SHPQ are associated with higher levels of hypohedonia). Two items from the SBM (i.e., degree of unpleasantness [SBM4] and impact on quality of life [SBM5] over the preceding two weeks), were also positively correlated with the LSHS, suggesting that individuals who were the most bothered by boredom (functionally and affectively) were also the individuals who were more likely to be hallucination-prone.

Interestingly, controlling for state boredom (SBM) through a partial correlation analysis effectively eliminated the association between the trait boredom measure (BPS) and hallucination-proneness, but not the association between anhedonia and BPS ($r=.26$, $P<.029$), indicating that there is more to the latter relationship than sustained state boredom or its aversiveness.

Finally, state boredom items were found to be the only significant predictors of current drug use. Self-identified substance users reported feeling frequently bored and that the quality of their lives was being negatively affected by boredom. However, they did not feel that they had been experiencing unusually long periods of sustained boredom (quite possibly because of their drug use). By contrast, the only significant predictor of past involvement in drug treatment was the feeling that boredom was having a negative impact on the quality of life.

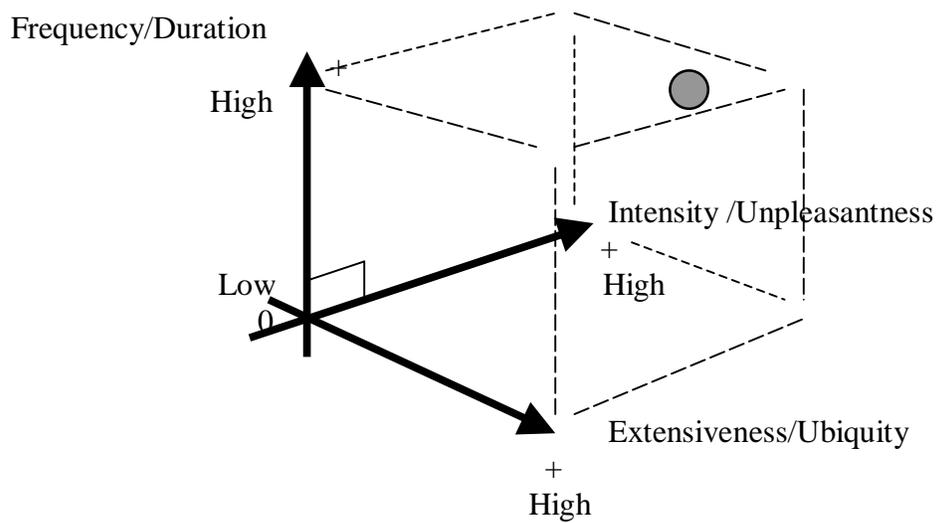


Figure 1. A Hypothetical Model of the Relationship between Anhedonia and Three Subjective Dimensions of Boredom. Solid Circle Represents the Clinical State of Anhedonia = Expectancies of High levels of Persistent and Frequent Boredom + Expectancies of High Levels of Extensive Boredom + Expectancies of High Levels Boredom Intensity

Boredom in Methadone Patients

We have also employed the SBM (Todman, 2004) and a number of other measures to examine the role of state boredom in sample of patients in a methadone maintenance treatment (MMT) program in NYC (Rajaratnam, et al., 2007; Todman, 2007). The study was conducted in the context of a larger study, which focused on the effects of aging and long term treatment with methadone. The inclusion of a state boredom measure in this study was prompted by findings from studies that have suggested that there is an association between boredom and the tendency to use alcohol and other psychoactive substances (Johnston & O'Malley, 1986; Iso-Ahola & Crowley, 1991; Orcott, 1984). However, to our knowledge, there had been no studies to date that had been able to demonstrate a relationship between state boredom and a patient's ability to remain abstinent while participating in a methadone maintenance treatment program. Moreover, since state boredom by definition varies over time and circumstance, we conjectured that if an association were to be found, it would be of considerably greater clinical utility than the trait-based associations that had been found in previous studies.

Briefly, The study consisted of a sample of 156 methadone participants, with a mean age of 45 years of age. Sixty-six percent of the participants were male. The average amount of time in methadone treatment had been approximately 10 years. All of the patients were paid for their participation. As part of a larger battery of assessments patients were administered the following scales: The SBM (Todman, 2004), the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983) and the Barratt Impulsiveness Scale (BIS; Barratt, 1993). Additionally, Information regarding urine toxicology results were obtained from the patients' clinical records. In keeping with the initial prediction that state boredom would be associated with greater symptom exacerbation and subjective distress, patients who reported more state boredom, particularly in terms of frequency, duration and impact on quality of life, were more likely to report higher elevations on almost all of the scales of the BSI, including Depression, Somatization, Interpersonal Sensitivity, Anxiety, Phobic Anxiety, Hostility, Paranoid Ideation, Psychoticism and Global Severity.

Another equally interesting finding was that participants who reported finding boredom particularly unpleasant over the preceding 14 days but who did not experience long periods of sustained boredom, were more likely to be have drug-free urine toxicology results at 30days and at 60days prior to the administration of the SBM. Furthermore, and consistent with this finding, individuals who reported having protracted periods of boredom over the previous 14 days were more likely have urine samples that were positive for opiates at 30 and 60 days prior to the SBM administration. Taken together, these findings suggest that despite an equal aversion to boredom, the abstinent patients, unlike those who continue to use opiates, may have developed coping mechanisms that have allowed them to avoid extended periods of boredom. (It is also important to note that the scores for depression, anxiety (from the BSI) and impulsivity (BIS) were also entered into the regression analysis with the SBM items but did not prove to be particularly effective predictors of either drug free urine toxicology results or continued opiate use.) Finally, the SBM provided no predictive value with toxicology results that were obtained 12

months prior to the administration of the SBM. This type of temporal gradient in predictive efficiency is consistent with the status of the SBM as a state measure.

Study Rationale

Although various theorists have suggested that some of the negative symptoms typically associated with schizophrenia and might not be endogenous in origin, but rather the byproduct of an under-stimulating treatment environment (e.g., Wing and Brown, 1970), there have been few attempts to empirically support this claim. In earlier writings, Todman has speculated about the various manifestations and consequences of boredom in psychotic disorders and have presented a series of case studies to illustrate the range of behavioral adaptations and responses that are likely to triggered by boredom and/or attempts to avoid it (Todman, 2003).

In a recent study with a sample of college students, two of the associations that were predicted on the basis of the case studies (i.e., boredom/boredom proneness – hallucination-proneness; and boredom/boredom proneness – anhedonia) were confirmed (Todman, 2007). The present study was undertaken in an effort to extend these findings into an actual SPMI population. In addition to the general goal of replicating some of the previously obtained boredom-related associations in a sample of individuals with actual histories of psychotic illness, we hoped to address several other questions and predictions. They included the following:

1. The observed relationship between boredom and anhedonia in the non-clinical sample have been found to be a negative one, suggesting that persistent feelings of boredom engender a type of abstinence or interest-craving syndrome (Todman, 2007). It was hypothesized that this inverse relationship reflects an exaggeration of the normal response to a monotonous experience – the seeking of a more interesting environment. Of particular interest in the current study was the question of whether this relationship would be reversed in a sample of individuals with schizophrenia and schizoaffective disorder. We expected this to be case based on the hypothesis that anhedonia and boredom exist on functional continuum of severity, with anhedonia occurring when a persistently bored individual concludes that the source of their boredom is internal, uncontrollable, inescapable and permanent. We conjectured that these types of attributions were far more likely to occur in the case of individuals with severe and persistent mental illnesses such as schizophrenia and schizoaffective disorder;
2. Another question of interest was issue of the differential prevalence and experience of boredom among the constituent diagnostic groups of the SPMI population. Specifically, we wanted to know whether boredom, a correlate of depressed mood, restlessness and feelings of general dissatisfaction (e.g., Kavanagh, et al, 1981), tended to be more pervasive in the more mood-involved disorders in the SPMI (i.e., schizoaffective disorders, major depression and bipolar disorder). We also speculated that if anhedonia does

in fact involve the attribution of permanence and ubiquity to feelings of boredom, we should also expect fewer external, situational attributions about the source of boredom in conditions in which anhedonia is expected to be particularly prevalent;

3. Since psychometrically determined hallucination-proneness is not the same as a documented history of having hallucinations, we wanted to determine whether boredom was in fact associated with an actual history of hallucinations in a SPMI population;
4. And finally, we wanted to find out whether current substance abuse status could be discerned on the basis of boredom prevalence, as was found to be the case in both college student and MMTP populations.

Method

Participants

Thirty-five participants were recruited from a community-based day treatment program for SPMI patients in New York City. The sample consisted of 13 individuals with schizophrenia, 10 individuals with schizoaffective disorder, eight individuals with Bipolar disorder, three individuals with Major Depressive Disorder, and one individual with psychotic disorder NOS. Because of the small cell sizes, the latter two diagnostic groups were excluded from most of the analyses. The mean age of the overall sample was 46, with a range of 26 to 82 years of age. A more complete description of the demographic and clinical characteristics of the sample is provided in Table 1. All of the participants were paid for their participation.

Materials and Procedure

The participants were recruited by case managers who were blind to the goals of the study. Each participant was interviewed individually by a trained Masters level graduate student in clinical psychology. In addition to the administration of the scales and measures listed below, the following information was obtained from the patient's clinical record: Current diagnosis; current medications; last inpatient stay; evidence of prior substance and/or alcohol abuse; evidence of current substance and/or alcohol abuse; and evidence of poor compliance with prescribed psychotropic medications. (All of the forgoing information was confirmed for accuracy and currency with the treating psychiatrist and the assigned case manager.). In addition, the following information was obtained directly for the patient: whether or not they had a history of hearing voices; whether or not they had heard voices during the previous 14 days; whether or not they had a history of depression; whether they had felt depressed during the previous 14 days; and a list of five activities that they enjoy and engage in on a regular basis. Finally, using a five point likert-type scale, ranging from Not at all to Constantly, two clinicians familiar

		Freq.	%
Race/ Ethnicity			
	African Am.	26	74.3
	Hispanic	8	22.9
	Asian	1	2.9
	Total	35	100.0
Gender	Male	20	57.1
	Female	15	42.9
	Total	35	100.0
history of depression			
	no	11	31.4
	yes	24	68.6
	Total	35	100.0
depression in last 14 days			
	no	23	65.7
	yes	12	34.3
	Total	35	100.0
heard voices in last 14 days			
	no	28	80.0
	yes	7	20.0
	Total	35	100.0
history of hearing voices			
	no	14	40.0
	yes	21	60.0
	Total	35	100.0
poor compliance			
	no	23	65.7
	yes	12	34.3
	Total	35	100.0
substance abuse history			
	no	5	14.3
	yes	30	85.7
	Total	35	100.0
Current Substance User			
	no	25	71.4
	yes	10	28.6
	Total	35	100.0

Table1. Sample characteristics including frequencies and percentages across demographic and clinical features. N= 35

with each of the participants in the study were asked to rate each of the patients on the extent to which they were: 1. Perceived to be Withdrawn and isolated; 2. Perceived to be Apathetic; 3. Perceived to be Non-communicative; 4. Perceived to be Exhibiting Flat affect; and 5. Perceived to be Unable to enjoy anything. The two clinicians were also asked to give an overall rating of symptom severity using a five-point likert-type scale, ranging from None (1) to Profound (5). A third set of ratings for 16 of the 35 patients were provided by another clinician who was insufficiently familiar with the remaining patients to provide ratings for the entire sample.

The participants were also administered the following scales and measures during a single session while attending the clinic:

Launay-Slade Hallucination Scale (LSHS; Launay & Slade, 1981; Slade and Bentall, 1988). This self-report scale consists of 12 items and was designed to evaluate an individual's propensity to hallucinate based on the view that hallucinatory events lie along a continuum that includes both normal and pathological anomalous perceptual experiences. Slade and Bentall (1988) established the reliability and validity of the LSHS on a non-psychiatric control sample (N = 150) and modified the scale by substituting the true/false dichotomy with a 5 point Likert Scale. Levitan, Ward, Catts, and Hemsley (1996) subsequently proposed a four factor structure to the LSHS: Factor 1, consisting of items concerning vivid daydreams (items 2,3,5,6,9); Factor 2, consisting of items reflecting hallucinatory experiences in psychosis (items 7,9,10, 11,12); Factor 3, consisting of items tapping intrusive, vivid thoughts (loading > 0.3, items 1,3,4,12); and Factor 4 consisting of items tapping perceptual aberrations (items 8,9). The present study employed the Slade and Bentall (1988) modified version of the scale.

The Snaith-Hamilton Pleasure Questionnaire- Modified (SHPQ-M; Snaith & Hamilton, 1995). This scale is a 14-item self-report scale that asks respondents indicate the extent to which they would expect to derive pleasure from certain activities and experiences. Overall, the SHPQ has been found to be psychometrically sound (Snaith & Hamilton 1995). In the original scoring scheme by Snaith and Hamilton, there are four scoring categories: "Definitely agree" and "Agree", both of which receive a score of "0", and "Disagree" and "Definitely disagree", both of which receive a score of "1". Consequently, a high score is associated with anhedonia and a low score with normal hedonic tone and hedonic strivings. Based on a study of sample of individuals with Major Depression Snaith and Hamilton have suggested that scores above 2/3 are indicative of clinically significant levels of anhedonia. In the approach adopted in this study, the 4-category scoring system was replaced by a 7-point likert-type scale ranging from "strongly disagree" (1) to "strongly agree" (7). Hence, the higher score, the higher the hedonic tone and hedonic strivings. Importantly, by providing a middle response category between "agree" and "disagree" this approach makes the assumption that individuals can be ambivalent or unsure in their responses to statements such as "I would get pleasure from helping others" or "I would enjoy being with family or close friends". Consequently, in addition increasing sensitivity and variability, hedonic tone

/hedonic strivings is conceived as a truly continuous dimension with no a priori claims being made with regard to the threshold for clinical significance. Accordingly, the modified SHPQ (SHPQ-M) represents a continuum of expectancies regarding hedonic strivings that range from unusually low levels (hypohedonia) to the highly exaggerated levels (hyperhedonic pleasure cravings) that have been found to be positively associated with boredom proneness in non-clinical populations (Todman, 2007).

The State Boredom Measure (SBM; Todman, 2004). The SBM is designed to be a state measure. It consists of eight questions about different aspects of the boredom experience, each of which is associated with a seven-point Likert-type scale (see Appendix 1). The participant is asked to base his/her responses on their recollections about boredom experiences during the preceding 14 days. The eight questions were created through a rational-theoretic process. Each of the test items can be grouped into one of four clusters or dimensions: Frequency/Duration; Degree of Unpleasantness/Aversiveness; Tolerance; Internal/External Attribution. Reliability and Validity were established using a sample of 160 adults, ranging in age from 24 to 65. The scale has good internal consistency (Alpha = 0.81), item-total correlations range from .67 to .30, and test-re-test reliability ranges from .78. to .45, across the eight items (Todman, 2004). In terms of validity, the eight items have been found to have correlations with the two best known measures of trait boredom, the Boredom Proneness Scale (BPS; Farmer and Sundberg, 1986,) and the Boredom Susceptibility Scale (BSS; Zukerman, 1979) that range from .82 to .37 and .78 to .25, respectively.

The Satisfaction with Life Scale (SWL; Diener, et al., 1985) is a concise and 5-item measure, which targets an individual's overall (general) satisfaction with life. Life satisfaction is considered to be one of three factors in the more general construct of subjective well being, which is believed to consist of positive affective appraisal, negative affective appraisal, and life satisfaction. Life satisfaction is distinguished from affective appraisal in that it is assumed to be cognitively driven, rather than emotionally driven. The SWL has been widely used to assess satisfaction with life in a variety of domains and populations and has been shown to have good psychometric stability (Arrindell, Meeuwesen & Huyse 1991; Neto, 1993; Pavot & Diener, 1993).

Results and Discussion

The inter-correlations between the eight SBM items and the other measures in the study are presented in Table 2. Although the sample is prohibitively small, many of the associations are consistent with the study predictions, as well as the results obtained in non-clinical samples (Rajaratnam, et al., 2007; Todman, 2004; 2007). Specifically:

Hallucination Proneness: LSHS, the measure of hallucination proneness, correlated positively with six of the eight items of the SBM. Of particular note is the large correlation coefficients associated with the LSHS scores and the degree to which patients' experienced boredom as being unpleasant (SBM4; $r = .69$, $p < .001$) and/or particularly disruptive (SBM5; $r = .66$, $p < .001$) over the previous two weeks. Importantly, controlling for a history of auditory hallucinations and having auditory hallucinations within the last two weeks had minimal effect of the strength of the observed associations.

History of Hearing voices & Voices during the last 14 days: Only two items correlated with a self-reported history of hearing voices (i.e., lifetime history). They were the patient's self-described capacity to tolerate boredom (SBM3: D; $r = .36$ $p < .05$) and LSHS (hallucination proneness) scores. In addition to validating the utility of the hallucination proneness measure, this finding also supports a central claim made about the predicted association between boredom and hallucination proneness: hallucinations, like daydreaming and other covert forms of self-stimulation, enhance the individual's capacity to "tolerate" boredom (Todman, 2003). It is of course possible that hallucination prone individuals are simply more sensitive to anomalous subjective experiences, or are perhaps more willing to report them. However, if this is the case, then it is surprising that there were not more significant associations found between the LSHS and the other variables in the study.

Of the variables assessed, only self-reported feelings of depression during the previous 14 days was found to be significantly associated with patients' actual reports of hallucinatory experiences during the preceding 14 days. This finding leaves open the possibility that complaints of recent/current hallucinations and depressive affect may be in part expressions of current distress.

Depressive feelings during the last 14 days: Consistent with the predicted relationship between boredom and depressive mood, significant associations were found between the degree of unpleasantness attributed to boredom (SBM4) and reported depression during the previous 14 days ($r = .45$, $p < .01$). Although it was not surprising to find that depressive feelings during the last 14 days were also correlated (negatively) with SWL scores ($r = -.40$, $p < .03$), as noted above, the association of recent/current depressive feelings with LSHS (hallucination proneness) scores ($r = .44$, $p < .03$) and reported hallucinations during the previous 14 days ($r = .45$, $p < .01$) was unexpected. Also surprising was the association between recent/current depressive mood and non-compliance with prescribed psychotropic medications ($r = .35$ $p < .05$). These findings,

		SBM1	SBM2	SBM3	SBM4	SBM5	SBM6	SBM7	SBM8										
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	
A	Gender	1.00																	
B	Frequency of Boredom	-0.25	1.00																
C	Freq. Boredom Longer Than 3 Hours	-0.05	0.50**	1.00															
D	High Tolerance for Boredom	-0.02	0.52**	0.44*	1.00														
E	Unpleasantness of Boredom	0.05	0.15	0.32	0.42*	1.00													
F	Boredom Impact on Life Quality	-0.38*	0.44*	0.61**	0.44*	0.57**	1.00												
G	Boredom Compared to Ten Years Ago	-0.04	-0.16	0.04	-0.15	-0.31	0.11	1.00											
H	Boredom Attrib to Medical Prob.	-0.10	0.11	0.36*	0.11	0.54**	0.48**	0.04	1.00										
I	Boredom Attrib to Social Pro.	-0.30	0.27	0.27	0.28	0.34	0.57**	0.04	0.41*	1.00									
J	total satisfaction with life	-0.34	-0.16	-0.22	-0.22	-0.29	-0.21	-0.14	-0.32	-0.31	1.00								
K	hallucination proneness	-0.36*	0.16	0.38*	0.40*	0.69**	0.66**	-0.25	0.36*	0.40*	-0.15	1.00							
L	anhedonia	0.05	-0.19	-0.52**	-0.20	0.03	-0.36*	-0.22	-0.23	-0.17	0.21	-0.20	1.00						
M	substance abuse hx	-0.39*	-0.09	0.11	-0.15	-0.07	0.14	0.00	0.05	0.05	0.21	0.30	-0.19	1.00					
N	poor compliance with meds	-0.22	0.29	0.04	0.04	0.15	0.16	-0.19	-0.10	0.22	0.04	0.22	-0.03	0.01	1.00				
O	history of hearing voices	0.00	-0.01	0.08	0.36*	0.31	0.13	-0.20	-0.02	0.01	-0.02	0.43*	-0.11	0.19	0.17	1.00			
P	heard voices in last 14 days	-0.15	0.00	-0.08	0.09	0.26	0.23	0.08	0.03	0.19	-0.25	0.34	0.20	-0.08	0.08	0.27	1.00		
Q	history of depression	0.03	0.15	0.26	0.15	0.26	0.18	-0.40*	0.11	0.18	-0.23	0.22	0.09	0.01	0.08	0.16	0.04	1.00	
R	depression in last 14 days	-0.03	0.20	0.25	0.15	0.45*	0.29	-0.04	0.32	0.24	-0.40*	0.44*	0.00	-0.01	0.35*	0.27	0.45*	0.33	1.00
S	Current Substance Use	0.03	0.38*	0.27	0.20	0.15	0.23	-0.06	-0.17	0.13	-0.40	0.34	-0.23	0.21	0.42*	0.07	0.16	0.14	0.32

Table 2. Inter-correlation matrix consisting of the component items of the State Boredom Measure (SBM), The Satisfaction with Life Scale (SWL), the Launay-Slade Hallucination Scale (LSHS), the Snaith-Hamilton Pleasure Questionnaire- Modified (SHPQ), Poor compliance with medication, History of hearing voices, History of depression, Substance Abuse history, depression within the last 14days, heard voices within the last 14days, Current Substance Abuse, and Gender, (N= 31). * = Pearson Correlation is significant at the 0.05 level (2-tailed). **= Pearson Correlation is significant at the 0.01 level (2-tailed). N = 31 (Mood Disorder and Psychotic Disorder NOS excluded from analysis)

together with the association with SMB4 (boredom unpleasantness), suggest that the changes in the experience of boredom are likely to accompany more general disturbances in mood and symptom severity.

History of Depression: The relationship between the SBM and self-reported prior episodes of depression is somewhat more complicated. The SBM item pertaining to the feeling that boredom is currently less pervasive than it has been in the past (i.e., 10 years earlier) was the only variable significantly associated with a reported history of depression (SBM6; $r = -.40$, $p < .03$). Specifically, despite reporting similar levels of current boredom (i.e., in terms of frequency [SBM1], duration [SBM2] and unpleasantness [SBM4]), individuals who reported having a history of depression also reported that they were currently less bored in relation to the past ($M = 2.33$) than patients who reported no history of depression ($M = 3.40$). Moreover, this difference proved to be significant, even when controlling for depressive mood during the previous 14 days, $F(1, 28) = 5.54$, $p < .01$. This negative association between reports of prior depression and current levels of boredom relative to the past is intriguing and suggests that for many patients with prior periods of depressive mood, boredom figures prominently in the representation of the memory of the depressive experience. This would be consistent with the aforementioned positive association between current/recent depressive mood (i.e., feelings of depression in the last 14 days) and the degree of unpleasantness associated with boredom.

Anhedonia (SHPQ-M): In a previous study with college students the SHPQ-M was found to be positively associated with both state and trait boredom, leading to the hypothesis that sustained boredom in non-psychiatric populations typically results in heightened expectations of pleasure/interest in future environments and activities. Moreover, it was suggested that such a state might reasonably be expected to lead to increased pleasure/interest seeking behaviors on the part of the individual (e.g., drug seeking and drug use) (Todman, 2003; 2007). Todman has also argued that this inverse boredom-anhedonia relationship underscores the fundamental difference between the experience of mere chronic boredom, and its most severe manifestation, anhedonia. He has proposed that anhedonia should be construed as not only a diminution of the capacity to derive positive reinforcement from current activities and environments (i.e., boredom), but also the *expectation* that positive reinforcement (i.e., interesting and pleasurable experiences) will continue to be unattainable (Todman, 2003). It therefore follows that we might expect a different type relationship between boredom and the SHPQ-M in populations that are at risk for diminished expectations of future positive reinforcement (such as the SPMI). Several aspects of the current findings are consistent with this conjecture. First, as seen in Table 3, compared to the SHPQ-M mean of the college sample from the Todman (2007) study, the mean of the SPMI sample is significantly higher, indicating truly outsized expectancies of pleasure/interest on the part of the SPMI when asked predict their affective response to potentially pleasure-inducing environments/activities such as those implied by the SHPQ statement, “I would find pleasure in small things such as bright sunny day” (Snaith & Hamilton, 1995). Second, as in the case with the college sample, SHPQ-M scores were significantly correlated with

GROUP	N	SHPQ	LSHS	SBM							
				B1	B2	B3	B4	B5	B6	B7	B8
Combined SPMI*	31	85.35 ^a	22.13 ^a	3.13	2.26	3.35	3.87	2.84	2.68	2.61	2.61 ^a
College Students	84	26.86 ^b	12.52 ^b	3.33	2.46	3.14	3.77	2.98	3.20	2.31	3.41 ^b
Total	115	85.35	22.13	3.28	2.40	3.20	3.80	2.94	3.06	2.39	3.19

Table 3. Comparison of group means on the SBM, SHPQ & LSHS across Combined SPMI vs. College Student sample.

a-b = significant difference between means at the 0.05 level; SBM = State Boredom Measure; SHPQ = Snaith Hamilton Pleasure Questionnaire; LSHS = Launay-Slade Hallucination Scale

the prevalence of boredom lasting longer the three hours (SBM2; $r = -.52, p < .001$) - but in the opposite direction. Moreover, individuals who reported higher levels of anhedonia also reported that boredom had a significantly greater impact on the quality of their lives (SBM5; $r = -.36, p < .05$). This seems to indicate that among the SPMI, individuals with the most persistent and disruptive boredom were also more likely to have greater diminishment in their expectancies for positive reinforcement from future environments and activities. It is as if some of the SPMI individuals, long constrained by their disabilities, relatively monotonous treatment environments and limited options for stimulating employment and recreational activity, had begun to habituate to the sameness of their lives. Consistent with this notion is the fact that no association was found between the SHPQ-M and boredom's perceived unpleasantness (SBM4), nor were there associations between the SHPQ-M and satisfaction with life (SWL) scores, or between LSHS scores and reports of depression in either the recent or not so recent past.

It is of course important to acknowledge that SPMI status is inextricably confounded with income level and educational/occupational history, with most of the SPMI falling at or below the poverty level. It is therefore possible, and indeed likely, that much of the exaggerated expectations of enjoyment from relatively mundane activities such as taking a warm bath or eating one's favorite meal are a stark reflection of the history of privation common to many in the SPMI sample. Even so, the fact remains that individuals who reported a higher prevalence of periods of sustained boredom also reported decreased levels of expected enjoyment from typically pleasurable activities and environments, suggesting that in the SPMI, sustained boredom, not depressive mood per se, may be the best indicator for hypohedonia.

Current Substance Abuse: State boredom, as assessed by the SBM, was found in previous studies to an effective predictor of current substance use in both college students and patients in methadone maintenance treatment (Rajaratnam, et al., 2007; Todman, 2007). An important question in the current study was whether a similar relationship would obtain in a sample of SPMI; a population for which the rate of dual diagnosis (i.e., a co-occurring substance related disorder and another Axis I disorder, such as schizophrenia) is notoriously high (e.g., Kessler et al., 1997).

As shown in Table 1, the rate of prior substance use in the current sample is extremely high (85.7%) and well within the range reported in the literature (Kessler et al., 1997). Moreover, because of the high base rate of prior substance use in the sample, substance abuse history was not found to be significantly correlated with current substance use, underscoring the value of identifying alternative markers in the monitoring of SPMI patients for current use (see Table 2). In fact, only three variables significantly correlated with current substance use: frequency of boredom (SBM1), SWL and poor compliance with prescribed medication. Working on the assumption that non-compliance with prescribed medications is probably a consequence (rather than an antecedent) of current substance abuse, a binary logistic regression analysis using SWL and boredom frequency as the predictor variables correctly identified 60% of the current substance abusers and 92.0% of the current non-users, for an overall accuracy rate of 82.9%, [$\chi^2(2, N=35) = 10.9, p < .004$]. Moreover, since all of the 10 current substance users also had a history of substance abuse, adding substance abuse history to the list of predictors - despite its weak correlation to current use - improved the identification of non-users to 100%.

Even though these results are consonant with previous findings from the previous studies with MMTP and non-psychiatric participants, the sample size in the current study is probably too small, and the effects too modest, to place an inordinate amount of confidence in the findings. Nonetheless, the findings are promising, and as such, remain very much in line with the notion that boredom is probably an important (and under-appreciated) factor in the motivation to use substances among the SPMI.

Schizoaffective Disorder vs. Schizophrenia. A major goal of the present study was to determine whether boredom as assessed by the SBM is experienced differently by individuals with schizoaffective and bipolar disorder than individuals with schizophrenia. It was hypothesized that individuals with schizophrenia would experience boredom less frequently and for shorter periods of time than individuals with disorders in which mood disturbances, especially depressive mood, were more prominent. This prediction was not confirmed. (Because of the small sample size, individuals with major depression and the single individual with psychotic disorder NOS were not included in the analysis.) The frequency, duration and unpleasantness of boredom among individuals with schizoaffective disorder were not found to be significantly different from mean levels among individuals with bipolar disorder and schizophrenia.

A follow-up analysis was conducted to ascertain whether the assumption that the rates of depressive feelings were differentially distributed across the three diagnostic groups was in fact correct. The results confirmed that none of the inter-group differences in reported lifetime occurrences of depression were statistically significant. Specifically, 53.8% of individuals with schizophrenia, 80% of the individuals with schizoaffective disorder, and 75% of the patients with bipolar illness reported having a history of depression. In terms of the reported incidence of recent/current depressive feelings (during the last 14 days), significantly more individuals with bipolar illness (62.5%) reported having current or recent feelings of depression than individuals with schizophrenia (15.4%) [$\chi^2 = 1, N = 21 = 4.94, p < .026$], but there were no significant differences found between schizoaffective disorder group (30%) and the other two diagnostic groups. Overall, the findings suggest that the differences in patient-reported depression across diagnostic groups may not have been sufficiently robust (at least in the small sample used in the current study) to adequately test for differences in the incidence and duration of boredom as function of diagnosis.

There were, however, significant differences between the three disorders in terms of the attributions made regarding the capacity to cope with and avoid boredom. Controlling for recent/current depression in an analysis of covariance (ANCOVA) individuals with schizophrenia ($M = 3.16; p < .03$), as well those with bipolar disorder ($M = 3.26; p < .04$), were found to be significantly more likely to attribute their inability to cope with boredom to medical reasons (SBM7) than individuals with schizoaffective disorder ($M = 1.42$) ($F(2, 27) = 3.46, p < .04$). On the other hand, individuals with schizophrenia ($M = 1.69$) were significantly less likely than individuals with bipolar disorder ($M = 3.50$) to attribute their inability to avoid boredom to their social circumstances. (SBM8; $F(1, 19) = 6.06, p < .02$), but only if recent/current depression was not entered as a covariate. The difference between schizophrenia and schizoaffective disorder approached but did not reach significance ($M = 1.69$ v 3.10 , respectively) ($F(1, 21) = 3.81, p < .06$).

A related question that might be asked about the SPMI and boredom is whether the prevalence of boredom as measured by the SBM is significantly different from that of individuals who do not have significant psychiatric histories or diagnoses (i.e., college students). To answer this question, boredom scores on the SBM from two administrations approximately one month apart from the college sample described above (Todman, 2007) were averaged and compared with the scores from the SPMI participants in the current sample. As seen in Table 3., the only significant difference between the two groups on the SPM is on the item that assesses the degree to which the individual attributes situational or social problems to their inability to avoid boredom (SBM8). In a subsequent set of analyses in which the college sample was compared to the each of the diagnostic groups separately, only the schizophrenia vs. college sample comparison yielded a significant difference on any of the SBM items. Specifically, the patients in the schizophrenia diagnostic group were found to be significantly less likely to attribute their difficulties in avoiding boredom to current social circumstances (SBM8).

Staff ratings of Negative Symptoms, and Overall Severity. Three staff members, blind to the hypotheses and the scores obtained by the various participants on the various measures administered, were asked to provide their impressions regarding the following patient features using a likert-type rating scale that ranged from 1= Not at all, to 5 = Constantly:

1. The degree to which the patient is perceived to be Withdrawn and Isolated
2. The degree to which the patient is perceived to be Apathetic
3. The degree to which the patient is perceived to be Non-communicative
4. The degree to which the patient is perceived to have Flat Affect
5. The degree to which the patient does not seem to Enjoy Anything

Two of the three staff raters provided ratings for the entire sample, the third rater completed 16 of the 35 participants using the same criteria. The staff raters were also asked to give an impression of the overall severity of the patients' illness on a likert-type scale, ranging from 1= None, to 5 = Profound

Apart from clarifying the definitions of the various terms used to describe the behaviors associated with the negative symptoms referred to in the questions, formal training was not provided to the raters, nor was there an attempt to establish inter-rater reliability. In short, we were interested in obtaining ecologically valid judgements from the clinical staff about the clinical status of the clients, much as they typically do on a daily basis without the benefit of standardized measures or checks for inter-rater agreement. In so doing, we hoped to get a sense of the degree to which the judgments of trained clinicians about the presence of negative symptoms and signs correlated with patients' reports of boredom as measured by the SBM. (Note: Two of the raters were experienced psychiatric social workers with advanced degrees. The third rater was a trained and experienced Ph.D candidate in clinical psychology)

In terms of internal consistency, two of the raters demonstrated a considerable amount of internal consistency in their ratings across the five negative symptom items (Alpha = .93 & .87). The third rater evidenced a somewhat lower level of internal consistency (Alpha = .68). Interestingly, for two of raters, none of their negative

symptom ratings correlated with their ratings of overall severity. In the case of the third rater, only two of the five items, “Apathy” and degree of “Withdrawal and Isolation”, were significantly correlated with severity ($r = .48$, $p < .01$ and $r = .41$, $p < .02$, respectively). Furthermore, while ratings of two of the raters significantly covaried with four of the six items (range: $r = .84$ to $r = .54$), there was no significant covariation found between the ratings for the remaining rater and the ratings by the other two raters. The only items that failed to show significant inter-rater covariation between any two raters was overall severity and non-communicative behavior.

None of the items on the SBM correlated significantly with the ratings of severity provided by the three raters. However, it is particularly notable that for one of the raters the patients’ reported frequency of boredom significantly correlated with the rater’s impressions of the patients’ degree of Withdrawal and Isolation ($r = .63$, $p < .01$), Apathy ($r = .59$, $p < .02$) and capacity to Enjoy Anything ($r = .62$, $p < .02$). Smaller but still significant associations were also found between the patients’ reported capacity to tolerate feelings of boredom on the SBM and the raters’ impressions of the patients’ level of Apathy ($r = .360$, $p < .047$), capacity to Enjoy Anything ($r = .350$, $p < .05$) [same rater], and degree of Flat Affect ($r = -.42$, $p < .02$). Collectively, these findings suggest, but don’t confirm, that expressions of patient boredom may be capable of influencing the clinical impressions of trained clinicians, even with those clinicians have frequent and extended contact with the patient.

Conclusions

It perhaps goes without saying that the small sample sizes and the fact that no corrections were made for the large number of comparisons requires that the findings be interpreted with extreme caution. Indeed, if a conservative adjustment such as the Bonferroni correction for alpha levels had been employed, most of the findings would have failed to reach significance. In short, the findings are at best, provisional. Even so, most of the findings were based on predictions drawn from previous studies with non-SPMI participants, thus not the product of blind, exploratory analyses. Consequently, the current set of findings, if nothing else, should provide incentive and justification for taking a more serious look at boredom and its utility in care and rehabilitation of the SPMI.

If the behavioral choices associated with an anxiety-provoking situation can be reduced to the overworked phrase, “flight or fight”, then the choices associated with boredom might well be described as “fidget or flee”. A working premise of the present study has been that fidgeting and fleeing, much like fighting or taking flight, are often maladaptive responses in a complex social world. And while most of us acquire a broader and more flexible repertoire of coping skills as a product of the normal psychosocial developmental process, there is no guarantee that these skills will be necessarily effective in all circumstances or that they will be used appropriately. Indeed, it is almost universally assumed by clinicians that the coping skills of individuals with severe and persistent mental illnesses such as schizophrenia and schizoaffective disorder are likely to be less effective, less efficient, less well developed and used less competently than those of healthy controls (e.g., Rosenfarb et al, 2000). It would therefore seem safe to assume

that this would also apply to the coping strategies typically employed to avoid and manage boredom. Consistent with this view were the findings from a study with MMTP patients whose levels of reported boredom were found to be positively correlated with almost all of the clinical and summary scales of Brief Symptom Inventory (Derogatis & Melisaratos, 1983), including the Global Severity Index (Todman, 2007). Consequently, the findings from the current study (despite the presence of some marginal effects) are somewhat surprising and are contrary to the expectation that the SPMI would be particularly vulnerable to feelings of monotony, especially in the highly routinized, under-stimulating, community-based facilities in which they often receive care and support.

Nonetheless, differences were found between individuals with schizophrenia and college students in terms of the attributions made about boredom, with the former being less likely attribute their inability to avoid boredom to social circumstances. One of interpretation of this finding that is consistent with the predictions of the study is that individuals with schizophrenia are more inclined to perceive their boredom as a product of non-social, possibly internal factors that are less controllable and/or subject to modification. The finding that individuals with schizophrenia, when compared to individuals with schizoaffective disorder are more inclined to attribute their inability to avoid boredom to medical reasons bolsters this conjecture.

In other respects, study was successful in generating supporting evidence for at least some of our initial predictions. Most notable were the following results:

1. As was the case in previous studies with other populations, the SBM demonstrated robust correlations with hallucination proneness (LSHS). Moreover, tolerance for boredom (SBM3) was found to be correlated with self-reported histories of actual auditory hallucinations.
2. Also predicted and confirmed was the finding that current substance abuse is associated with the frequency of boredom (SBM1), demonstrating the potential utility of state boredom as a marker for a patient's current risk for substance abuse in populations where the base rate of substance abuse history is likely to be extremely high (e.g., the SPMI).
3. In a previous study with a non-clinical sample, expectancies of reinforcement from future environments and activities and boredom were found to be positively correlated. It has been argued that like daydreaming, outsized expectancies of positive reinforcement through alternate activities and/or environments reflect a covert expression of the normal motivational and cognitive concomitants of the "flee or fidget" reaction to sustained boredom. The current study replicated the finding of an association between expectancies of reinforcement from future environments and activities and boredom, but also demonstrated that among the SPMI, the relationship is inverted so that greater amounts of sustained boredom is associated with diminished expectations of future reward. We interpret this finding as being consistent with a conception of anhedonia as an extreme adaptation to sustained boredom in which there is an increasing conviction that monotony is permanent, ubiquitous, and largely uncontrollable. Consonant with the notion that such an adaptation is probably more prevalent among the individuals with schizophrenia in the current sample was the fact that they were less likely to

attribute their inability to avoid boredom to external, social factors (SBM8) and more likely to report that they were more bored today than they were 10 years (SBM6). Also, the more frequently individuals with schizophrenia experienced periods of sustained boredom (SBM 2), the greater their reported satisfaction with life ($r = .609$ $p < .029$)

Although there is no good way to know for sure, one interpretation of this seemingly paradoxical finding is that the avoidance of anxiety is paramount for these individuals, and to do so requires a sort of Faustian bargain in which protracted periods of boredom (anxiety's conceptual opposite) are accepted as a normal, if not desirable, state of being (Csikzentmihalyi, 2000). By contrast, for patients with bipolar disorder, the correlations between sustained boredom and satisfaction with life and expectancies of positive reinforcement were negative and large ($r = -.908$ $p < .002$; $r = -.743$ $p < .035$, respectively). This suggests that while boredom plays a very prominent role in the motivational dynamics of patients with bipolar illness, it seems to play a relatively less important role (at least in relation to anxiety) in the dynamics of individuals with schizophrenia. That no associations were found between boredom and either the SWL or the SHPS among patients with schizoaffective disorder speaks to a potentially important distinction between schizoaffective disorder and the other two diagnoses.

4. Although boredom has been accused of masquerading as a negative symptom for decades (e.g., Wing and Brown, 1970) the present study is one of the few that has been able to demonstrate empirically that there is a correspondence between patients' reports of boredom and the attributions of negative symptoms on the part of experienced clinicians. The position taken in this chapter, however, is that boredom should be regarded as a negative symptom in its own right and that it exists on a functional continuum with anhedonia.
5. Finally, the strong correlation between noncompliance and substance use is consistent with other similar findings in the literature (e.g., Kessler et al 1997). It is therefore not surprising that the diagnostic group with by far the largest percentage of active substance users, bipolar disorder, is also the diagnosis with the largest proportion of noncompliant individuals. It is also interesting that the bipolar group is the diagnostic group that is most likely to attribute their boredom coping problems to both social (external) and medical (internal) obstacles.

REFERENCES

- Barratt, E.S. (1993). Impulsivity: Integrating cognitive, behavioral, biological and environmental data. In W.B. McCown, J.L Johnson and M.B. Shue(Eds.), *The Impulsive Client: Theory, Research and Treatment* (pp.39-56) Washington, DC: American Psychological Association.
- Bogenschutz M.P & Siegfried S.L. (1998). Factors affecting engagement of dual diagnosis patients in outpatient treatment. *Psychiatric Services* 49:1350-1352
- Csikszentmihalyi, M. (2000). *Beyond boredom and anxiety*. Jossey-Bass Inc,
- Davies, A. H. (1926).The physical and mental effects of monotony in modern industry. *British Medical Journal* 2: 472-479.
- Derogatis, L.R & Melisaratos, N. (1983). The Brief Symptom Inventory. An introductory report. *Psychological Medicine*, 13(3): 595-605
- Farmer, R., and Sundberg, N.D. (1986).Boredom Proneness- The development and correlates of a new scale. *Journal of Personality Assessment* 50: 4-17.
- Gordon, A., Wilkinson, R., MCGown, A., and Jovanoska, S. (1987). The psychometric properties of the Boredom Proneness Scale: An examination of its validity. *Psychological Studies* 42: 85-97.
- Johnston, L. D. & O'Malley, P. M. (1986). Why do the nation's students use drugs and alcohol? Self-reported reasons from nine national surveys. *Journal of Drug Issues*, 16: 29-66.
- Kavanagh, M.J, Hurst, M.W., and Rose, R. (1981). The relationship between job satisfaction and psychiatric health symptoms for air traffic controllers. *Personnel Psychology* 34 (4): 691-707.
- Kessler, R.C., Crum, R.M., Warner, L.A., Nelson, C.B.,Schulenberg, J., & Anthony, J.C., (1997). Lifetime co-occurrence of DSM-II-R alcohol abuse and dependence with other psychiatric disorders in the National Comorbidity Survey. *Archives of General Psychiatry*, 54: 313-321.
- Launay, G and Slade, PD.(1981). The measurement of hallucinatory predisposition in male and female prisoners. *Personality and Individual Differences*, 2: 221-234
- Leong, F.T., and Schneller, G.R. (1993).Boredom proneness: Temperamental and cognitive components. *Personality and Individual Differences* 14: 233-239.
- Levitan, C, Ward, PB, Catts, SV, Hemsley, DR. (1996). Predisposition toward auditory hallucinations: The utility of the Launay-Slade Hallucination Scale in psychiatric patients. *Personality and Individual Differences*, 21: 287-289.
- Margo, A., Hemsley ,D.R., and Slade, P.D. (1981) The effects of varying auditory input on schizophrenic hallucinations. *British Journal of Psychiatry* 139: 122-7.
- Mikulas, W.L., and Vodanovich, S.J. (1993).The essence of boredom. *The Psychological Record* 43: 3-12.
- OHanlon, J.F. (1981) Boredom: A review. *Human Factors* 23: 329-340.
- Orcutt, J.D. (1984). Contrasting effects of two kinds of boredom on alcohol use. *Journal of Drug Issues* 14: 161-173.

- Rajaratnam, R., Sivesind, D., Todman, M., Roane, & Seewald, R. (2007). Characteristics of Older Adults Enrolled in Methadone Maintenance Programs American Association for Geriatric Psychiatry AAGP Annual Meeting - New Orleans, LA, March 1.
- Rosenfarm, I.S., Neuchterlein, K.H., Goldstein, M.J., & Subotnik, K.L., (2000). Neurocognitive vulnerability, interpersonal criticism, and the emergence of unusual thinking by schizophrenic patients during family transitions. *Archives of General Psychiatry*, 57: 1174-1179.
- Slade, P.D., and Bentall, R.P. (1988) *Sensory Deception: A Scientific Analysis of Hallucination*. Croom Helm
- Snaith, R.P, Hamilton, M.et al. (1995). A scale for the assessment of hedonic tone: the Sanith Hamilton Pleasure Scale. *British Journal of Psychiatry* 167: 99-103
- Sundberg, N.D., Latkin, C.A., Farmer, R.F., and Saoud, J. (1991). Boredom in young adults: Gender and cultural comparisons. *Journal of Cross-cultural Psychology* 22: 209-223.
- Todman,M. (2003). Boredom and psychotic disorders: Cognitive and Motivational Issues *Psychiatry: Interpersonal and Biological Processes* 66(2): 146-167.
- Todman, M (2004). The dimensions of state boredom: frequency, duration, unpleasantness, consequences and causal attributions. Unpublished Document. New School for Social Research
- Vodanovich, S.J., and Kass, S.J.(1990).A factor analytic study of the Boredom Proneness Scale. *Journal of Personality Assessment* 55: 115-123.
- Wangh, M. (1975). Boredom in psychoanalytic perspective. *Social Research* 42: 538-550.
- Wiesbeck, G, A., Wodarz, N., Maurerer, C., Thome, J., Jakob, F., and Boening, J. (1996). Sensation Seeking, alcoholism and dopamine activity. *European Psychiatry* 11: 87-92.
- Wing, J. K. and Brown, G. W. (1970) *Institutionalism and Schizophrenia*. London: Cambridge University Press.
- Zukerman, M. (1979)..*Sensation Seeking: Beyond the Optimal Level of Arousal*. Hillsdale, NJ: Erlbaum,
- Zukerman, M., Eysenck, S., and Eysenck, H.J. (1978). Sensation seeking in England and America: Cross-cultural, age and sex comparisons. *Journal of Consulting and Clinical Psychology* 46: 139-149.
- Zurita, A., Murua, S., and Molina, V. (1996). An endogenous opiate mechanism seems to be involved in stress-induced anhedonia. *European Journal of Pharmacology* 299: 1-7.

Appendix 1: The State Boredom Measure (Todman, 2004)

1. Over the last two weeks:

How often would say that you can remember feeling bored?

1	2	3	4	5	6	7
never or very rarely						most or all of the time

2. Over the last two weeks:

How often would you say that you can you remember feeling bored for longer than **THREE HOURS** at a time?

1	2	3	4	5	6	7
Never or Very Rarely						Very Frequently

3. Over the last two weeks:

What is the longest period of time that you could tolerate being bored before trying to do something about it?

1	2	3	4	5	6	7
Only for very brief periods of time (e.g. less than few minutes)						For very long periods of time (e.g. more than 2 hours)

4. Over the last two weeks:

How **unpleasant** was the experience of boredom for you?

1	2	3	4	5	6	7
Not Unpleasant Unpleasant		Mildly Unpleasant		Moderately Unpleasant		Extremely

6. Over the last two weeks:

Compared to how you felt ten years ago, would you say that you were:

1	2	3	4	5	6	7
Bored Much LESS Often		Bored Somewhat LESS Often	No Difference	Bored Somewhat MORE Often		Bored Much MORE Often

7. Over the last two weeks:

Have there been physical or medical problems that you believe have made it more difficult to avoid being bored?

1	2	3	4	5	6	7
Strongly Disagree		Disagree	Not Sure	Agree		Strongly Agree

8. Over the last two weeks:

Have there been situational or social problems (e.g., issues at work or home) that you believe have made it more difficult to avoid being bored?

1	2	3	4	5	6	7
Strongly Disagree		Disagree	Not Sure	Agree		Strongly Agree