Evaluation of Anhedonia with the Snaith–Hamilton Pleasure Scale (SHAPS) in adult outpatients with major depressive disorder

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Abstract

Anhedonia or inability to experience pleasure not only is a core symptom of major depressive disorder (MDD), but also is identified as an important component of the positive valence system in

the NIMH Research Domain Criteria. The Snaith–Hamilton Pleasure Scale (SHAPS) has been developed for the assessment of hedonic experience or positive valence, but has not been well-studied in depressed outpatient populations. The current study examined the reliability and validity of the SHAPS using a sample of adult outpatients with treatment resistant MDD. Data for the current study were obtained from 122 adult outpatients with a diagnosis of MDD and non-response to adequate treatment with an SSRI and who participated in Project TReatment with Exercise Augmentation for Depression (TREAD). A Principal Components Analysis was used to define the dimensionality of the SHAPS. Convergent and discriminant validity were evaluated via correlations of the SHAPS total score with "gold standard" measures of depression severity and quality of life. The SHAPS was found to have high internal consistency (Cronbach's coefficient α = .82). A Principal Components Analysis suggests that the SHAPS is mainly "unidimensional" and limited to hedonic experience among adult outpatients with MDD. Convergent and discriminant validity were assessed by examining the Spearman rank-order correlation coefficient between the SHAPS total score and the $HRSD_{17}$ ($r_s = 0.22$, $p<.03$), $IDS-C_{30}$ ($r_s = 0.26$, $p<.01$), $IDS-SR_{30}$ ($r_s = 0.23$, $p<.02$), $QIDS-C_{16}$ ($r_s = 0.22$, $p<.03$), $QIDS-SR_{16}$ ($r_s = 0.17$, $p<.10$), QLES-Q ($r_s = -0.32$, p<.002), and the pleasure/enjoyment item (sub-item 21) of the IDS-C ($r_s = 0.44$, $p<.0001$) and IDS-SR ($r_s = 0.38$, $p<.0002$). The self-administered SHAPS showed modest sensitivity (76%) and specificity (54%) with the self-administered pleasure/enjoyment single item (sub-item 21) of $IDS-SR_{30}$. The current study shows that the SHAPS is a reliable and valid instrument to assess hedonic experience or positive valence in adult outpatients with MDD and provides a broader assessment of this important domain.

Keywords

Major depressive disorder; hedonic experience; Snaith-Hamilton; anhedonia

1. Introduction

Low hedonic experience or anhedonia is considered a core symptom in the psychopathology of major depressive disorder (APA, DSM IV, 2000; ICD, WHO, 1992). Among the various extant anhedonia scales (e.g., Chapman et al. 1976; Fawcett et al., 1983; Gard et al., 2006; Snaith et al., 1995), most of which are clinician-rated, is the 14-item, self-administered, Snaith–Hamilton Pleasure Scale (SHAPS; Snaith et al., 1995), which was developed for the assessment of hedonic experience or positive valence, but the evaluation of its validity and reliability has received little research attention in patients with MDD or other Axis I disorders. Three validation studies that previously examined the psychometric properties of the SHAPS in a clinical setting used the French (Loas et al., 1997), German (Franz et al., 1998), or Dutch (Franken et al., 2007) version of the SHAPS and used small clinical samples of outpatients with MDD or inpatients with schizophrenia (sample sizes ranged from 20 to 103 inpatients). Nakonezny et al. (2010) is the only validation study to date (to our knowledge) that examined the psychometric properties of the English version of the SHAPS using a large sample of 461 adult outpatients with MDD and, taken together with the three previous validation studies of the non-english versions of the SHAPS (Franken et al., 2007; Franz et al., 1998; Loas et al., 1997), provide some of the necessary foundation for this study.

The purpose of the current study was to replicate our previous study (Nakonezny et al., 2010), which evaluated the psychometric properties of the original (English) version of the SHAPS (Snaith et al., 1995), in the context of using a sample of adult outpatients who were (on average at study exit) less depressed than the sample of adult outpatients used in the Nakonezny et al. (2010) study (sample obtained from Project IMPACTS; Trivedi et al., 2007). As in our previous study (Nakonezny et al., 2010), we used classical test theory analysis to examine the internal consistency, scale dimensionality, and convergent and discriminant validity of the SHAPS. Also, in this study, we examined the sensitivity and specificity of the SHAPS as well as the relationship of the SHAPS scores with participant demographic and clinical characteristics.

2. Methods

2.1. Study and Participants

The current study was conducted using data from the TREAD (TReatment with Exercise Augmentation for Depression) project. The procedures and methods of the TREAD study have been detailed elsewhere (Trivedi et al., 2011). Briefly, Project TREAD examined the efficacy of two doses of aerobic exercise as an augmentation treatment for MDD patients. Participants were 122 adults outpatients with nonpsychotic MDD that, at the time of study entry, had non-response (17-item Hamilton Rating Scale for Depression score of 14 or greater) to SSRI monotherapy of adequate dosage and duration (Trivedi et al., 2011). The Structured Clinical Interview for DSM-IV (SCID) (First et al., 1995) was used to verify the entry diagnosis of MDD.

2.2. Measures

The current study used three separate clinician-rated and two self-administered instruments to measure depression severity, a self-administered instrument to measure hedonic experience, and a self-administered instrument to measure quality of life, enjoyment, and satisfaction. Clinical raters were blind to treatment assignment throughout the course of the study.

2.2.1. Hedonic Experience—The 14-item Snaith–Hamilton Pleasure Scale (SHAPS; Snaith, 1993) is a self-administered instrument that was used to measure hedonic experience or positive valence. Each of the items has a set of four response categories--Strongly Agree, Agree, Disagree, and Strongly Disagree, with either of the Agree responses receiving a score of 0 and either of the Disagree responses receiving a score of 1. Total scores ranged from 0 to 14 (Snaith, 1993), with higher scores indicating a lower level of hedonic experience or a higher level of anhedonia.

2.2.2. Quality of Life, Enjoyment, and Satisfaction—The Quality of Life, Enjoyment, and Satisfaction Questionnaire (QLES-Q short form; Endicott et al., 1993) is a 16-item self-administered questionnaire designed to measure degree of enjoyment and satisfaction in general activities. The QLES-Q measured each of the items using a 5-point Likert-type scale. The QLES-Q was first scored as the sum of the first 14 items so that total scores ranged from 14 to 70 and then the sum was converted into a percentage of the

maximum possible score. Higher QLES-Q scores reflected greater enjoyment and satisfaction with general activities. The QLES-Q has previously been found to have acceptable reliability and validity (Endicott et al., 1993).

2.2.3. Depressive Symptom Severity—The 17-item, clinician-administered, Hamilton Rating Scale for Depression ($HRSD_{17}$; Hamilton, 1960) was used to assess depressive severity. Total score on the $HRSD_{17}$ ranges from 0 to 52, with higher scores representing greater severity of depressive symptoms. The $HRSD_{17}$ has established psychometric properties (Hamilton, 1960; Schwab et al., 1967).

The 30-item Inventory of Depressive Symptomatology ($IDS-C_{30}$ and $IDS-SR_{30}$; Rush et al., 1996; Trivedi et al., 2004) was administered. The $IDS-C_{30}$, the clinician-administered version, and the $IDS-SR_{30}$, the self-report version, each includes the 16 items making up the nine domain symptoms of the DSM IV diagnosis of MDD and contained on the $QIDS_{16}$, as well as 14 additional items designed to assess melancholic, atypical, and anxious features. Total score on the $IDS-C_{30}$ and $IDS-SR_{30}$ ranges from 0 to 84, with higher scores representing greater severity of depressive symptoms. The IDS-C/IDS-SR item 21 assesses pleasure/enjoyment using a 4-point scale ranging from 0 (derives usual sense of enjoyment from pleasurable activities) to 3 (unable to register any sense of pleasure/enjoyment from anything). The psychometric properties of the $IDS-C_{30}$ and $IDS-SR_{30}$ have been previously evaluated (Rush et al., 2003, 1996; Trivedi et al., 2004).

The 16-item Quick Inventory of Depressive Symptomatology ($QIDS-C_{16}$ and $QIDS-SR_{16}$; Rush et al., 2003; Trivedi et al., 2004) were derived from the $IDS-C_{30}$ and $IDS-SR_{30}$, respectively Total score on the $QIDS-C_{16}$ and $QIDS-SR_{16}$ ranges from 0 to 27, with higher scores representing greater severity of depressive symptoms. The psychometric properties of the $QIDS-C_{16}$ and $QIDS-SR_{16}$ have been extensively evaluated (Rush et al., 2003, 1996; Trivedi et al., 2004).

2.3. Statistical Analysis

The Spearman rank-order/point-biserial partial correlation coefficient (controlling for $QIDS-C_{16}$ at exit) was used to assess the relationship between SHAPS total score (at exit) and participant demographic and clinical characteristics. For the point-biserial correlation analysis, sex, race, and first versus recurrent episode of depression were binary indicators; sex coded as male = 0 and female = 1, race coded as Caucasian = 0 and non-Caucasian = 1, and first versus recurrent episode of depression coded as first = 0 and recurrent = 1.

Classical Test Theory (CTT) analysis was used to generate the mean, standard deviation, and item/total correlation (r_{it}) for each SHAPS item as well as the overall scale mean and scale standard deviation. CTT analysis also evaluated the internal consistency of the SHAPS using Cronbach's coefficient alpha (α).

A Principal Components Analysis, with Varimax rotation, and a Parallel analysis (Bernstein et al., 2009; Horn, 1965; Humphreys and Montanelli, 1975) were used to define the dimensionality of the SHAPS. In a unidimensional scale, the observed eigenvalue of the first principal component should exceed the eigenvalue of the first randomly generated principal

component (using Parallel analysis), but the reverse should be the case of all subsequent eigenvalues.

Convergent and discriminant validity were evaluated via correlations of the SHAPS with "gold standard" measures of depression severity and quality of life. In particular, we examined the Spearman rank-order correlation coefficient (r_s) between the SHAPS total score and the pleasure/enjoyment item (sub-item 21) of the IDS-C_{30}/IDS-SR_{30}, and the QLES-Q, HRSD$_{17}$, IDS-C_{30}, IDS-SR_{30}, QIDS-C_{16}, and QIDS-SR_{16} total scores respectively. Further, the one-way Welch's ANOVA (Welch, 1951) was used to examine, on the SHAPS total score, those who were "severely-to-very severely depressed" ($\geq$ 37 IDS-C_{30}/IDS-SR_{30} total score) versus those who were "mild-to-moderately depressed" (< 37 IDS-C_{30}/IDS-SR_{30} total score). Also, the pleasure/enjoyment item of the IDS-C_{30}/IDS-SR_{30} (sub-item 21) was categorized into three groups (those who scored 0 vs. 1 vs. 2 or 3) and then a one-way Welch's ANOVA was used to evaluate the relationship between the three groups of the IDS-C_{30}/IDS-SR_{30} sub-item 21 and the SHAPS total score. The Tukey-Kramer procedure was used to examine the *post hoc* pairwise comparisons among the three groups of the IDS-C_{30}/IDS-SR_{30} sub-item 21 on the SHAPS total score.

Finally, using the binary cut-off scoring of $\leq$ 2 ("normal) and > 2 ("abnormal") of "normal/abnormal" hedonic experience for the SHAPS (Snaith et al., 1995), we also assessed the sensitivity and specificity of the self-administered SHAPS in relation to the pleasure/enjoyment item (sub-item 21) of the self-report IDS-SR_{30} (coded as binary indicators: 0 vs. 1 or 2 or 3 for this sensitivity/specificity analysis).

All analyses were carried out using SAS software, version 9.3 (SAS Institute, Inc., Cary, NC). Patients who did not have any post-baseline data were not included in the analysis. The level of significance for all tests was set at α = .05 (two-tailed).

3. Results

3.1. Participant Characteristics

The study sample included 22 males (18.0%) and 100 females (82.0%), with an average age of 47.0 years (SD=9.9; age range: 22–67 years). Participants included 105 (86.1 %) Caucasians, 14 (11.5 %) African-Americans, 1 (0.80%) Hispanic, and 2 (1.6%) other (not specified). Approximately 30% of the participants were in their first episode of depression. The average length of illness was 19.8 years (SD=11.9), and the average duration of the current depressive episode was 6.7 years (SD=7.9). Demographic and clinical characteristics (baseline and exit) of the participants are reported in Table 1.

3.2. SHAPS and Participant Characteristics

The Spearman partial correlations (controlling for QIDS-C_{16} at exit) between the SHAPS total score at exit and participant characteristics, including measures of depressive severity and quality of life, are reported in Table 2.

3.3. Internal Consistency and Scale Dimensionality

The internal consistency (Cronbach's coefficient alpha) of the SHAPS was 0.82. The mean item-total correlation was 0.44 (ranging from 0.16 to 0.67). Table 3 summarizes the classical test theory results for the SHAPS. Cronbach's coefficient alpha for each of the depression scales (at exit) used in the current study was as follows: $HRSD_{17}$ ($\alpha = 0.77$), $IDS-C_{30}$ ($\alpha = 0.87$), $IDS-SR_{30}$ ($\alpha = 0.88$), $QIDS-C_{16}$ ($\alpha = 0.79$), and $QIDS-SR_{16}$ ($\alpha = 0.78$).

A principal components analysis as well as a parallel analysis both suggests perhaps a two- or three-factor solution (i.e., observed eigenvalues of the first three components were 4.37, 2.07, and 1.47; Figure 1). However, examination of the rotated factor pattern indicated that these components do not differ with regard to content (i.e., a distinct interpretation of each of the three components is not clear; Table 3). Thus, this result suggests that a unidimensional-factor structure yields the most adequate solution for the SHAPS in the current study.

3.4. Convergent and Discriminant Validity

When the pleasure/enjoyment item of the IDS Clinician-rated scale ($IDS-C_{30}$ sub-item 21) was categorized into three groups (those who scored: 0 vs.1 vs. 2 or 3), the one-way Welch's ANOVA revealed a significant between-subjects group effect on the SHAPS total score ($F = 10.25$, $df = 2$, 19.33, $r = 0.49$, $p < .0009$). The means for SHAPS total scores were lower for those who scored "0" on $IDS-C_{30}$ sub-item 21 ("derives usual sense of enjoyment from pleasurable activities," $M = 0.95$, $SD = 1.59$, n=61) than those who scored "1" on $IDS-C_{30}$ sub-item 21 ("does not feel usual enjoyment from pleasurable activities," $M = 2.31$, $SD = 3.18$, n=19) or those who scored "2 or 3" on $IDS-C_{30}$ sub-item 21 ("rarely derives pleasure from any activities" or "unable to register any sense of pleasure/enjoyment from anything," $M = 4.63$, $SD = 2.73$, n=11). The Tukey-Kramer pairwise comparisons of the three groups (0, 1, 2 or 3) on the SHAPS total score indicated a significant difference between those who scored "2 or 3" and those who scored "1" ($p < .01$), between those who scored "2 or 3" and those who scored "0" ($p < .0001$), and between those who scored "0" and those who scored "1" ($p < .04$).

When the pleasure/enjoyment item of the IDS Self-Report scale ($IDS-SR_{30}$ sub-item 21) was also categorized into three groups (those who scored 0 vs.1 vs. 2 or 3), the one-way Welch's ANOVA revealed a significant between-subjects group effect on the SHAPS total score ($F = 5.35$, $df = 2$, 15.16, $r = 0.43$, $p < .017$). The means for SHAPS total scores were lower for those who scored "0" on $IDS-SR_{30}$ sub-item 21 ("derives usual sense of enjoyment from pleasurable activities," $M = 0.84$, $SD = 1.71$, n=45) than those who scored "1" on $IDS-SR_{30}$ sub-item 21 ("does not feel usual enjoyment from pleasurable activities," $M = 1.97$, $SD = 2.33$, n=39) or those who scored "2 or 3" on $IDS-SR_{30}$ sub-item 21 ("rarely derives pleasure from any activities" or "unable to register any sense of pleasure/enjoyment from anything," $M = 4.71$, $SD = 4.15$, n=07). The Tukey-Kramer *post-hoc* analysis of the three coded $IDS-SR_{30}$ sub-item 21 groups revealed that the mean rating on the SHAPS total score for those who scored "2 or 3" was significantly greater than those who scored "1" ($p < .01$) and those who scored "0" ($p < .0001$), respectively. Those who scored "0" and those who scored "1" were also significantly different from each other on the SHAPS total score

($p< .05$). Further, the SHAPS total score was negatively correlated with the QLES-Q ($r_s = -0.32$, p$< .002$).

The Spearman correlations revealed a positive relationship between the SHAPS total score and the total scores on the $HRSD_{17}$ ($r_s = 0.22$, $p<.03$), IDS-C_{30} ($r_s = 0.26$, $p<.01$), IDS-SR_{30} ($r_s = 0.23$, $p<.02$), $QIDS$-C_{16} ($r_s = 0.22$, $p<.03$), and $QIDS$-SR_{16} ($r_s = 0.17$, $p<.10$). The direction and magnitude of these correlation coefficients suggested that persons with greater levels of depression severity had relatively higher levels of anhedonia (or lower levels of hedonic experience; Table 2). Indeed, patients who were "severely-to-very severely depressed" at exit on the IDS Clinician-rated scale (37 IDS-C_{30} total score, n=12) had higher mean SHAPS total scores (higher levels of anhedonia) than those who were "mild-to-moderately depressed" (< 37 IDS-C_{30} total score, n=80), M=3.41 (SD=3.47) versus M=1.40 (SD=2.17), $F = 3.82$, $df = 1$, 12.32, $p<.07$, $R^2 = .08$, $r = .28$. Patients who were "severely-to-very severely depressed" at exit on the IDS Self-Report scale (37 IDS-SR_{30} total score, n=9) also had higher mean SHAPS total scores (higher levels of anhedonia) than those who were "mild-to-moderately depressed" (< 37 IDS-SR_{30} total score, n=83), M=3.55 (SD=3.64) versus M=1.46 (SD=2.23), $F = 2.87$, $df = 1$, 8.66, $p<.12$, $R^2 = .07$, $r = .26$.

3.5. Sensitivity and Specificity

Based on the binary cut-off scoring of 2 ("normal) and > 2 ("abnormal") of "normal/abnormal" hedonic experience for the SHAPS (Snaith et al., 1995), the self-administered SHAPS showed modest sensitivity (76%) and specificity (54%) with the self-report pleasure/enjoyment item (sub-item 21) of IDS-SR_{30} (coded as binary indicators: 0 vs. 1 or 2 or 3 for this sensitivity/specificity analysis).

4. Discussion

The current study replicated our previous study (Nakonezny et al., 2010), which evaluated the psychometric properties of the original (English) version of the SHAPS (Snaith et al., 1995), in the context of using a sample of adult outpatients who were (on average at study exit) less depressed than the sample of adult outpatients used in the Nakonezny et al. (2010) study (sample obtained from Project IMPACTS; Trivedi et al., 2007).

The internal consistency of the SHAPS in the current study is high ($\alpha = 0.82$) and is consistent with our previous psychometric evaluation of the SHAPS (Nakonezny et al., 2010) ($\alpha = 0.91$) and is in line with previous findings in outpatients with MDD, inpatients with schizophrenia (e.g., Franken et al., 2007; Franz et al., 1998; Loas et al., 1997), and depressed and non-depressed patients diagnosed with Parkinson's disease (Lemke et al., 2006). Unlike our previous psychometric evaluation of the SHAPS (Nakonezny et al., 2010), which found the SHAPS to be clearly unidimensional (one-factor solution), the current study suggests scale dimensionality of perhaps a two- or three-factor solution. Examination of the rotated factor pattern, however, indicates that these components do not differ with regard to content—that is, a distinct interpretation of each of the three components is not clear; thus, we conclude that a "unidimensional-factor structure" most likely yields the most adequate solution for the SHAPS in the current study. Perhaps this difference in finding of scale dimensionality (factor solution), however, is likely a result of the difference in average level

of depression severity and hedonic experience between the two outpatient samples (adult outpatients in the current study who were on average at study exit less depressed with a lower level of anhedonia than adult outpatients used in the Nakonezny et al. 2010 study). This finding here, nonetheless, is in line with the Franken et al. (2007) study who also found a three-factor solution in their non-patient, normal control, sample (Study 1), but a one-factor solution in their clinical patient samples (Study 3). Together with results from the few extant psychometric evaluation studies, the SHAPS (English and foreign versions) has high internal consistency and appears to be limited mainly to hedonic experience or positive valence in both patient (Franken et al., 2007; Franz et al., 1998; Lemke et al., 2006; Loas et al., 1997; Nakonezny et al., 2010) and non-patient volunteer populations (Franken et al., 2007; Leventhal et al., 2006).

Convergent and discriminant validity were assessed by evaluating the relationship between the SHAPS total score and five separate measures of depression severity (three clinician-rated and two self-administered), the pleasure/enjoyment item (sub-item 21) of the IDS-C$_{30}$/IDS-SR$_{30}$, and a measure of Quality of Life, Enjoyment, and Satisfaction. The pattern of the SHAPS mean scores is consistent with the scoring direction on the pleasure/enjoyment item of the IDS-C$_{30}$/IDS-SR$_{30}$ (sub-item 21); that is, those who rarely or are unable to derive pleasure from activities (as coded/scored on IDS-C$_{30}$/IDS-SR$_{30}$ sub-item 21) also have higher levels of anhedonia or lower levels of hedonic experience (as measured via the SHAPS). The self-administered SHAPS also shows modest sensitivity (76%) and specificity (54%) with the self-report pleasure/enjoyment item (sub-item 21) of IDS-SR$_{30}$. The SHAPS also correlates negatively with the QLES-Q, suggesting that persons with lower levels of enjoyment and satisfaction with activities (as measured by the QLES-Q) have higher levels of anhedonia (or lower levels of hedonic experience as measured by the SHAPS).

The magnitude of the correlation between the SHAPS total score and each of the other five measures of depression (three clinician-rated and two self-administered) is modest--and in line with previous findings (e.g., Franken et al., 2007; Franz et al., 1998; Loas et al., 1997; Leventhal et al., 2006; Mazzaa et al., 2009; Nakonezny et al., 2010)--suggesting that hedonic experience or positive valence (as measured by the SHAPS) may either tap a related, but distinct construct from depression, or likely provides a broader assessment of the positive valence system. The SHAPS is also able to discriminate between outpatients who were severely-to-very severely depressed and those who were mild-to-moderately depressed. This pattern held for both the clinician-rated and self-administered instruments that we used to measure depressive severity. The results of the current study in an outpatient sample of adult patients with MDD and those from previous findings (e.g., Franken et al., 2007; Franz et al., 1998; Loas et al., 1997; Leventhal et al., 2006; Mazzaa et al., 2009; Nakonezny et al., 2010) suggest that the SHAPS has adequate construct validity.

Finally, in this study, we examined the relationship of the SHAPS with participant demographic and clinical characteristics. The SHAPS is not influenced by age, sex, race, education, duration of the current depressive episode, length of illness, or first versus recurrent episode of depression. This basic finding is consistent with our previous psychometric evaluation of the SHAPS (Nakonezny et al., 2010) and with the Franken et al. (2007) study and is in line with the supposition that the SHAPS was developed to minimize

cultural, sex/gender, and age biases in the evaluation of hedonic experience or positive valence (Snaith et al., 1995).

The current study may be tempered by a key limitation. Because the evaluation of convergent validity of the SHAPS in the current study (and in our previous Nakonezny et al., 2010, study) was limited in scope (and evaluated mainly against the single pleasure/ enjoyment sub-item 21 of the IDS-C$_{30}$/IDS-SR$_{30}$ and the QLES-Q), the inclusion of a more comprehensive (multi-item) anhedonia scale that measures a broader domain of anhedonia would have further strengthened the assessment of convergent validity of the SHAPS. But the SHAPS was the only multi-item measure of hedonic experience that was collected in both the Project TREAD study (sample used in the current study) and in the Project IMPACTS study (sample used in our previous Nakonezny et al., 2010, study).

Despite this limitation, the current study has strengths, including a fairly large sample of adult outpatients with major depressive disorder. Further, unlike our previous study (Nakonezny et al., 2010), the current study evaluated (validated) the self-administered SHAPS against both self-administered and clinician-rated measures of depression severity.

In conclusion, there are similarities between the results from our previous psychometric evaluation of the SHAPS (Nakonezny et al., 2010) and the current study, which include that the original (English) version of the SHAPS (Snaith et al., 1995) has high internal consistency, with construct validity, and is limited mainly to the trait of hedonic experience or positive valence among adult outpatients with major depressive disorder. The SHAPS is not influenced by participant demographic characteristics. The demonstration and similarity of good psychometric properties of the SHAPS between the two studies, with different mean levels of depression severity and hedonic experience of the two outpatient samples, provides further support for its use in both clinical and research settings of adults with MDD. However, given that anhedonia may reflect a transdiagnostic trait that plays a role in various psychopathologies (e.g., Cohen et al., 2010; Kashdan et al., 2006; Leventhal et al., 2010; Watson and Naragon-Gainey, 2010), future studies are indicated to evaluate the reliability, validity, and utility of the SHAPS across various diagnostic groups and perhaps across various age groups (broad-spanning from adolescents to geriatric patients). Evaluation of the SHAPS across such specific diagnostic groups as bipolar disorder, anxiety disorder, PTSD, schizoaffective disorder, substance use disorder, and recurrent suicidality, for example, may contribute to a more accurate characterization of relevant individual differences in depressive pathology. Nonetheless, the current study provides evidence that the SHAPS could be a useful tool for assessing hedonic experience in adults with MDD.

Acknowledgments

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Highlights

- There are similarities between the results from our previous psychometric evaluation of the SHAPS (Nakonezny et al., 2010) and the current study, which include that the original (English) version of the SHAPS (Snaith et al., 1995) has high internal consistency, with construct validity, and is mainly limited to the trait of hedonic experience among adult outpatients with major depressive disorder.

- The SHAPS is not influenced by participant demographic characteristics.

- The demonstration and similarity of good psychometric properties of the SHAPS between the two studies, with different mean levels of depression severity and hedonic experience of the two outpatient samples, provides further support for its use in both clinical and research MDD settings.
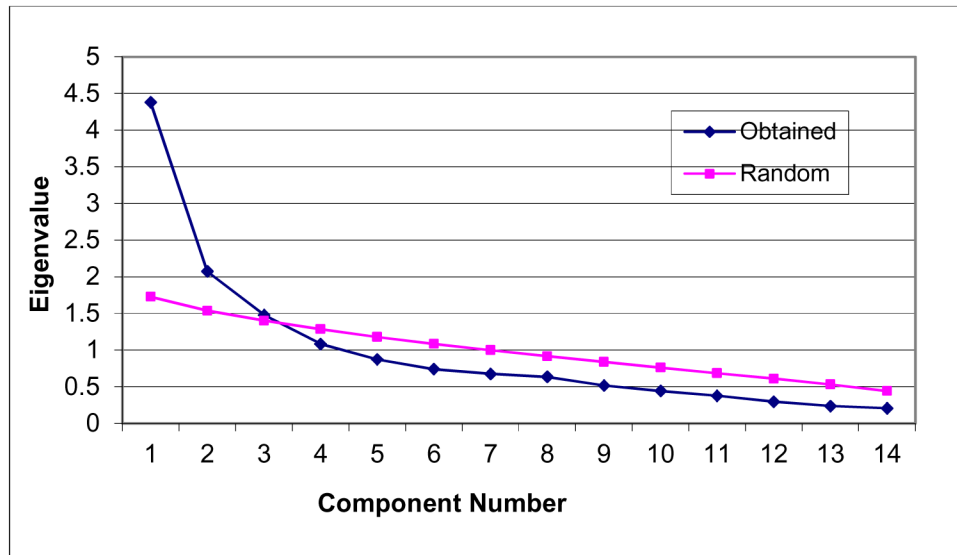
Figure 1.
Scree Plot of the SHAPS at exit (n=92)

Table 1

Participant Characteristics

Participant Characteristic	Patient Sample (N = 122)
Demographics	
Age in years, M (SD)	47.0 (9.9)
Education in years, M (SD)	14.2 (4.6)
Race, N (%)	
Caucasian	105 (86.1)
African American	14 (11.5)
Hispanic	1 (0.80)
Other (not specified)	2 (1.6)
Sex, N (%)	
Female	100 (82.0)
Male	22 (18.0)
Clinical Characteristics	
First MDD Episode, N (%)	36 (29.5)
Current MDD Episode Length in years, M (SD)	6.7 (7.9)
Age of MDD Onset in years, M (SD)	27.4 (11.3)
Length of Illness in years, M (SD)	19.8 (11.9)
BMI at baseline, M (SD)	30.8 (6.2)
BMI at exit, M (SD)	30.4 (5.9)
SHAPS total at baseline, M (SD)	3.1 (3.0)
SHAPS total at exit, M (SD)	1.7 (2.5)
$HRSD_{17}$ total at baseline, M (SD)	18.0 (3.8)
$HRSD_{17}$ total at exit, M (SD)	11.9 (5.9)
$IDS\text{-}C_{30}$ at baseline, M (SD)	34.0 (7.4)
$IDS\text{-}C_{30}$ at exit, M (SD)	21.9 (11.9)
$IDS\text{-}SR_{30}$ at baseline, M (SD)	32.4 (9.6)
$IDS\text{-}SR_{30}$ at exit, M (SD)	20.6 (11.4)
$QIDS\text{-}C_{16}$ at baseline, M (SD)	13.9 (2.6)
$QIDS\text{-}C_{16}$ at exit, M (SD)	9.4 (4.7)
$QIDS\text{-}SR_{16}$ at baseline, M (SD)	12.6 (4.0)
$QIDS\text{-}SR_{16}$ at exit, M (SD)	8.1 (4.4)
$IDS\text{-}C_{30}$ sub-item 21 at baseline, M (SD)	1.1 (0.91)
$IDS\text{-}C_{30}$ sub-item 21 at exit, M (SD)	0.54 (0.85)
$IDS\text{-}SR_{30}$ sub-item 21 at baseline, M (SD)	1.2 (0.71)
$IDS\text{-}SR_{30}$ sub-item 21 at exit, M (SD)	0.62 (0.69)
QLES-Q at baseline, M (SD)	59.8 (10.7)
QLES-Q at exit, M (SD)	70.0 (12.5)

Note: M = Mean; SD = Standard Deviation; N = sample size at baseline (n=92 at exit).

Table 2

Spearman rank-order correlation coefficients between the SHAPS and various other scales at exit and participant demographic and clinical characteristics

	HRSD$_{17}$	IDS-C$_{30}$	IDS-SR$_{30}$	QIDS-C$_{16}$	QIDS-SR$_{16}$	IDS-C21	IDS-SR21	QLES-Q	Age	Sex	Race	Education	First/Recurrent Episode	Current Epidose Length	Length of Illness
SHAPS Total (p value)	0.22 (0.0383)	0.26 (0.0120)	0.23 (0.0272)	0.22 (0.0335)	0.17 (0.1040)	0.44 (<.0001)	0.38 (0.0002)	−0.32 (0.0022)	0.02[a] (0.8562)	0.04[a] (0.7386)	0.09[a] (0.3799)	−0.11[a] (0.3033)	−0.05[a] (0.6574)	0.09[a] (0.4016)	0.05[a] (0.6226)

Note. For the point-biserial correlation analysis, sex, race, and first versus recurrent episode of depression were binary indicators; sex coded as male = 0 and female = 1, race coded as Caucasian = 0 and non-Caucasian = 1, and first versus recurrent episode of depression coded as first = 0 and recurrent = 1. Education, current episode length, and length of illness are all measured in years.

IDS-C21 & IDS-SR21 = the pleasure/enjoyment item of the IDS-C30 & IDS-SR30, respectively (sub-item 21).

HRSD17, 17-item Hamilton Rating Scale for Depression; IDS-C30, 30-item Inventory of Depressive Symptomatology – Clinician-rating; IDS-SR30, 30-item Inventory of Depressive Symptomatology – Self Report-rating; QIDS-C16, 16-item Quick Inventory of Depressive Symptomatology—Clinician-rating; QIDS-SR16, 16-item Quick Inventory of Depressive Symptomatology—Self Report-rating; QLES-Q, Quality of Life, Enjoyment, and Satisfaction Questionnaire—General Activities sub-scale; SHAPS, Snaith–Hamilton Pleasure Scale.

[a] Correlation coefficient adjusted for QIDS-C16 at exit.

Table 3

Item means, item/total correlations, scale internal consistency (α), scale mean, scale standard deviation, and factor loadings for the SHAPS-items at Exit (n = 92)

Scale Items	Mean	SD	r_{it}	Factor 1	Factor 2	Factor 3
1. I would enjoy my favorite television or radio program	0.141	0.350	0.458	0.598	0.283	−0.089
2. I would enjoy being with family or close friends	0.097	0.298	0.168	−0.068	−0.007	0.761
3. I would find pleasure in my hobbies and pastimes	0.250	0.435	0.678	0.706	0.267	0.290
4. I would be able to enjoy my favorite meal	0.141	0.350	0.547	0.209	0.399	0.702
5. I would enjoy a warm bath or refreshing shower	0.065	0.248	0.211	−0.003	0.125	0.531
6. I would find pleasure in the scent of flowers or the smell of a fresh sea breeze or freshly baked bread	0.163	0.371	0.381	0.661	0.089	−0.128
7. I would enjoy seeing other people's smiling faces	0.043	0.205	0.373	−0.026	0.789	0.058
8. I would enjoy looking smart when I have made an effort with my appearance	0.108	0.312	0.433	0.581	0.296	−0.142
9. I would enjoy reading a book, magazine or newspaper	0.119	0.326	0.649	0.344	0.724	0.210
10. I would enjoy a cup of tea or coffee or my favorite drink	0.097	0.298	0.478	0.648	−0.113	0.453
11. I would find pleasure in small things; e.g., bright sunny day, a telephone call from a friend	0.086	0.283	0.622	0.707	0.142	0.332
12. I would be able to enjoy a beautiful landscape or view	0.119	0.326	0.409	0.069	0.687	0.181
13. I would get pleasure from helping others	0.065	0.248	0.345	0.749	−0.186	0.001
14. I would feel pleasure when I receive praise from other people	0.163	0.371	0.450	0.125	0.793	0.035
Variance Explained by each Factor				23.6%	19.5%	13.4%
Cronbach's Coefficient α	0.818					
Scale Mean	1.663					
Scale Standard Deviation	2.455					
Mean Item–Total Correlation	0.443					

Rotated Factor Loadings[a]

[a]Varimax rotation from a Principal Components Analysis.